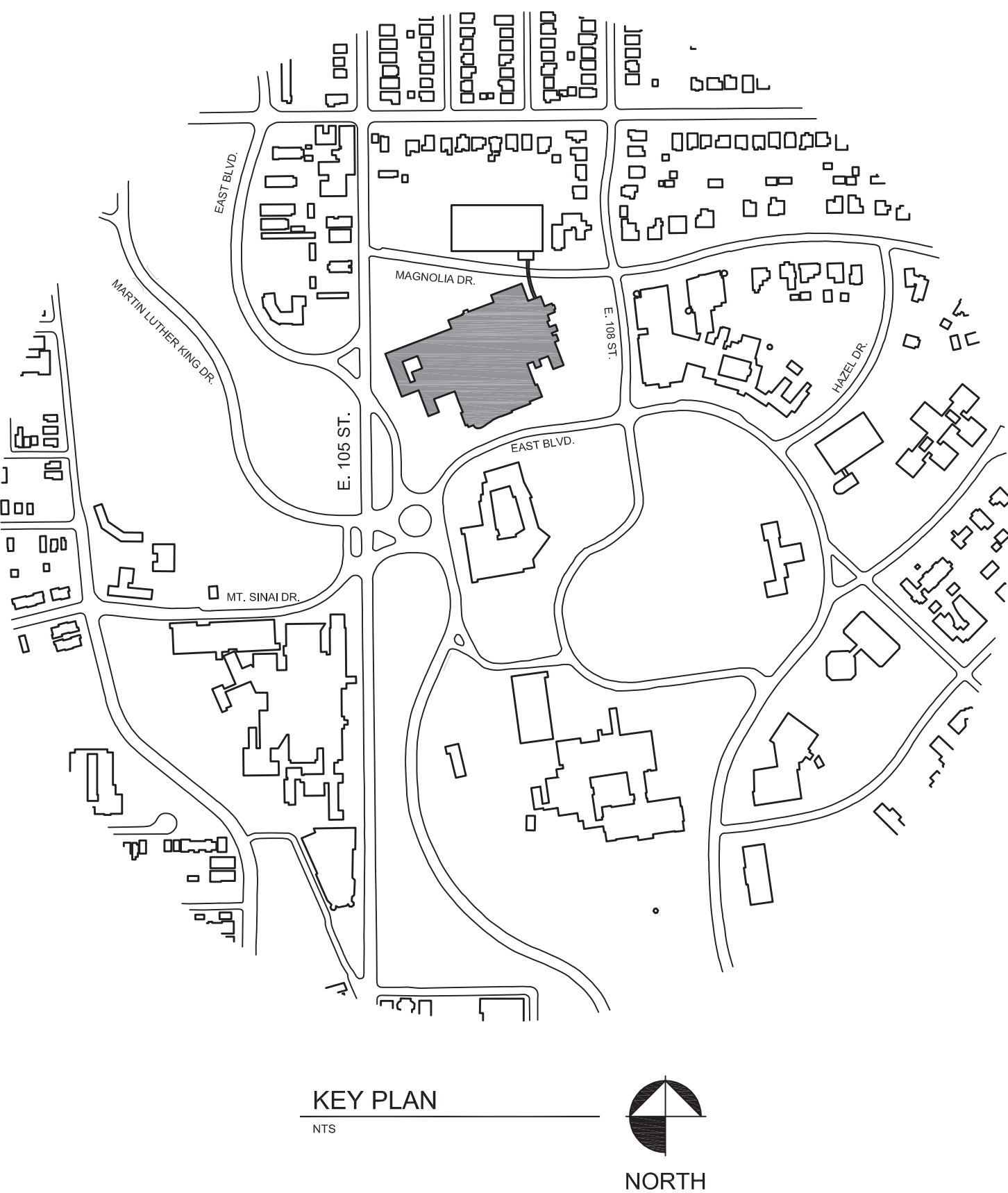


DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER - WADE PARK
10701 EAST BLVD. CLEVELAND, OH. 44106

UPGRADE LEARNING EXCHANGE - PHASE 2
PROJECT NO. 541-13-106

Veterans Administration
Medical Center



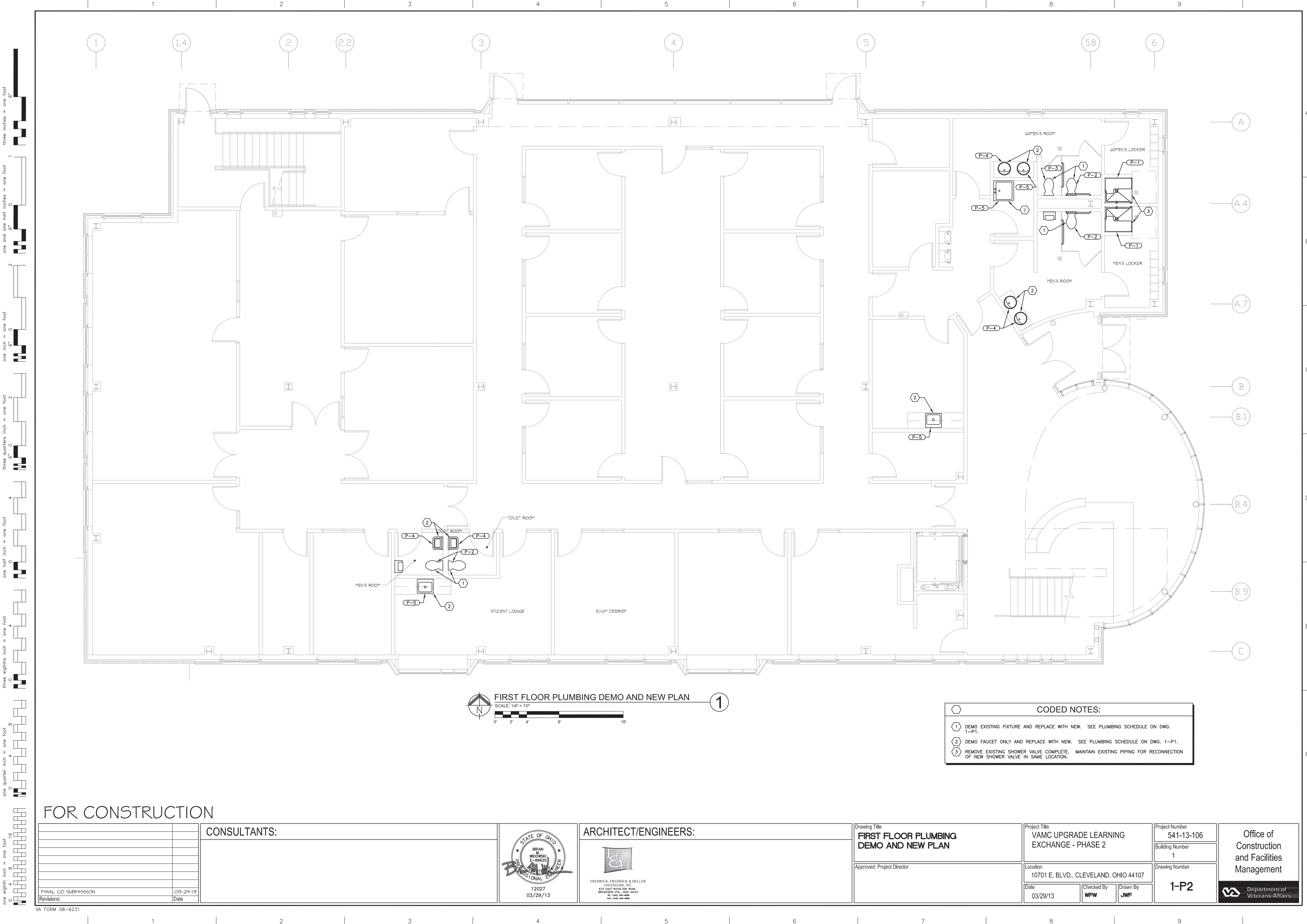
DRAWING INDEX

FINAL CD SUBMISSION - FOR CONSTRUCTION
MARCH 29, 2013

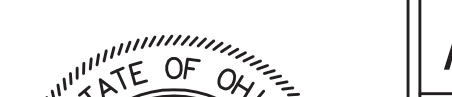


1-X0	COVER SHEET
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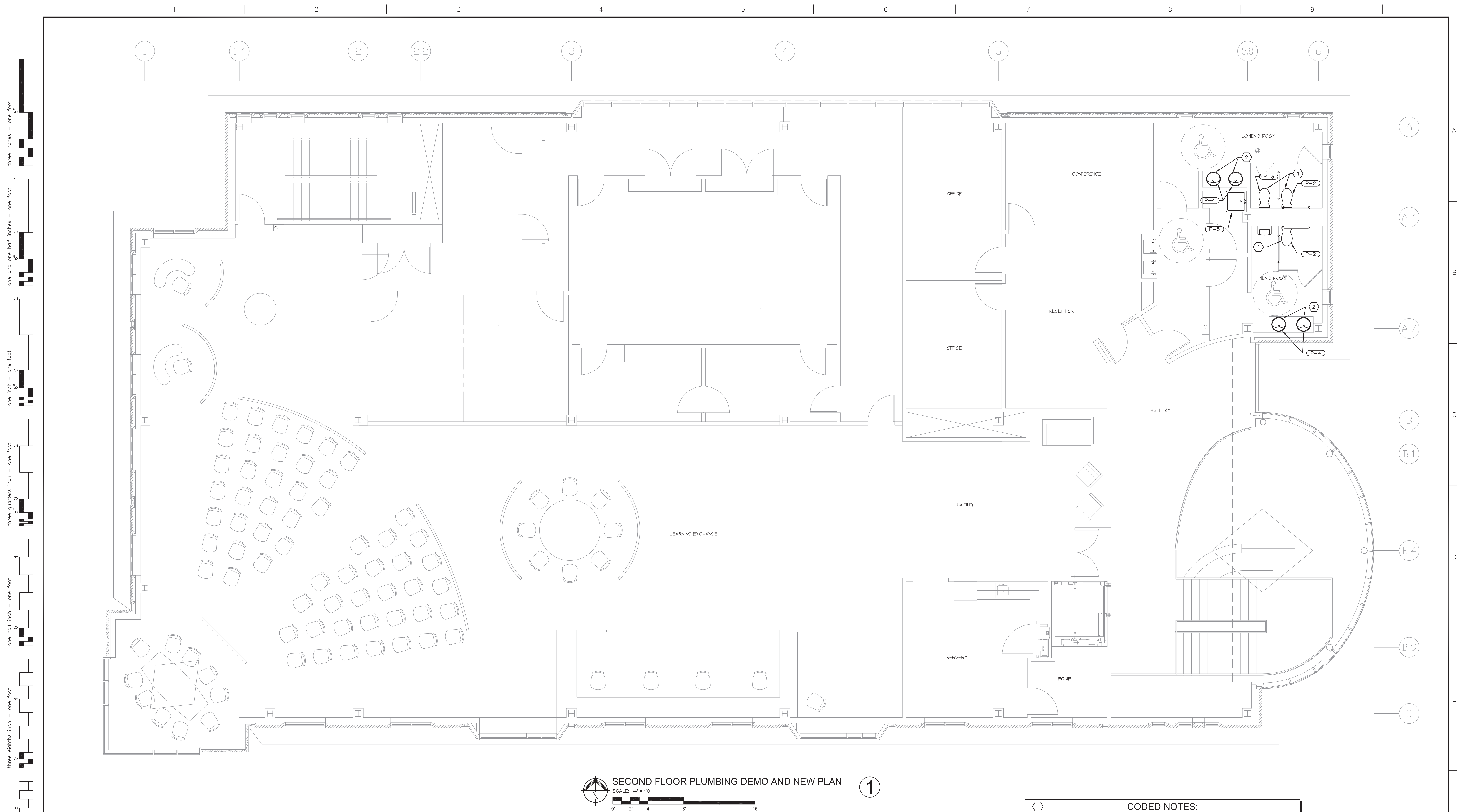
Fredrick, Fredrick & Heller Engineers, Inc.
Mechanical & Electrical Engineer 672 East Royalton Road, Broadview Heights, Ohio 44147

FINAL CD SUBMISSION 95% CD SUBMISSION Revisions	APPROVALS		DATE		APPROVALS		DATE		APPROVALS		DATE		Drawing Title COVER SHEET		Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2		Project Number 541-13-106		Office of Facilities Management
	DIRECTOR 00				CHIEF Planning and Construction				FACILITY MANAGER				Approved: Division Chief		Location VAMC - WADE PARK		Building Number 1		
	ASSOCIATE DIRECTOR 00A (B)				CHIEF, Occupational Health & Safety				SHOP FOREMAN 138				Approved: Service Director		Date 03-29-13		Checked BMW		
	CHIEF, ENGINEERING 138				CHIEF, IRM										Drawn JWF		Drawing Number 1-X0		

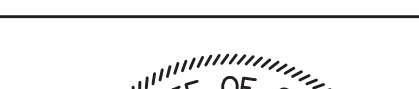




FOR CONSTRUCTION

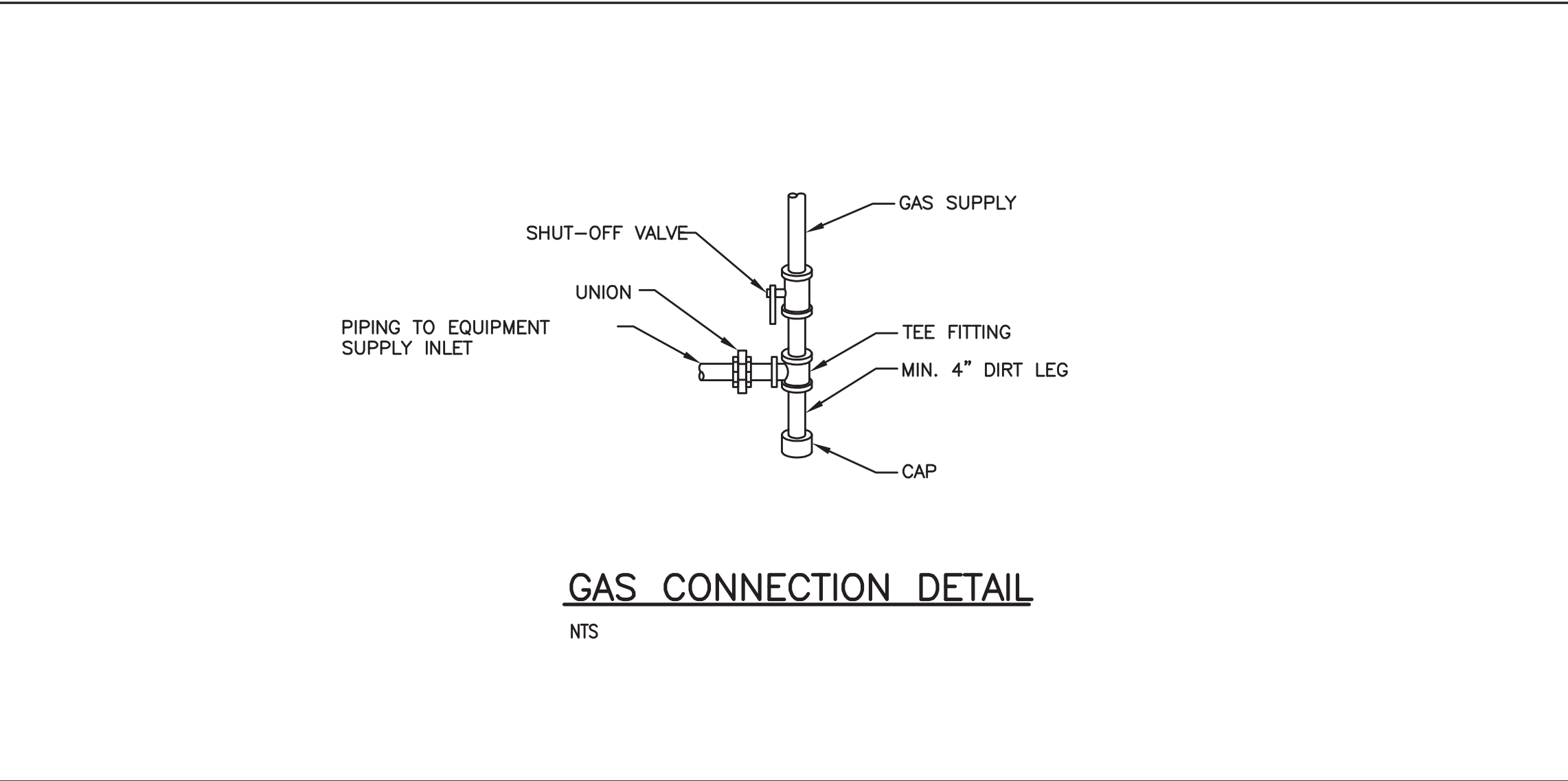
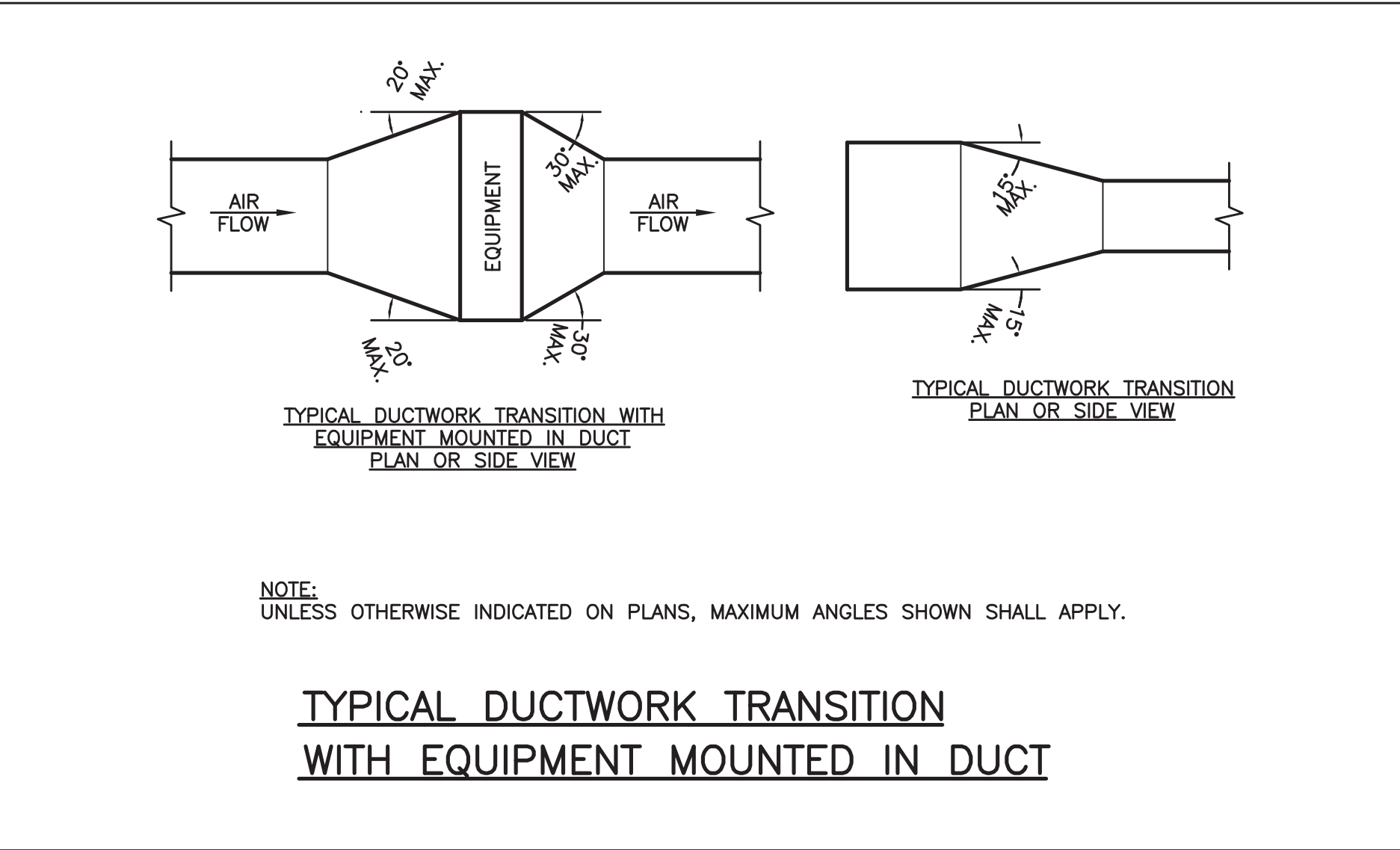
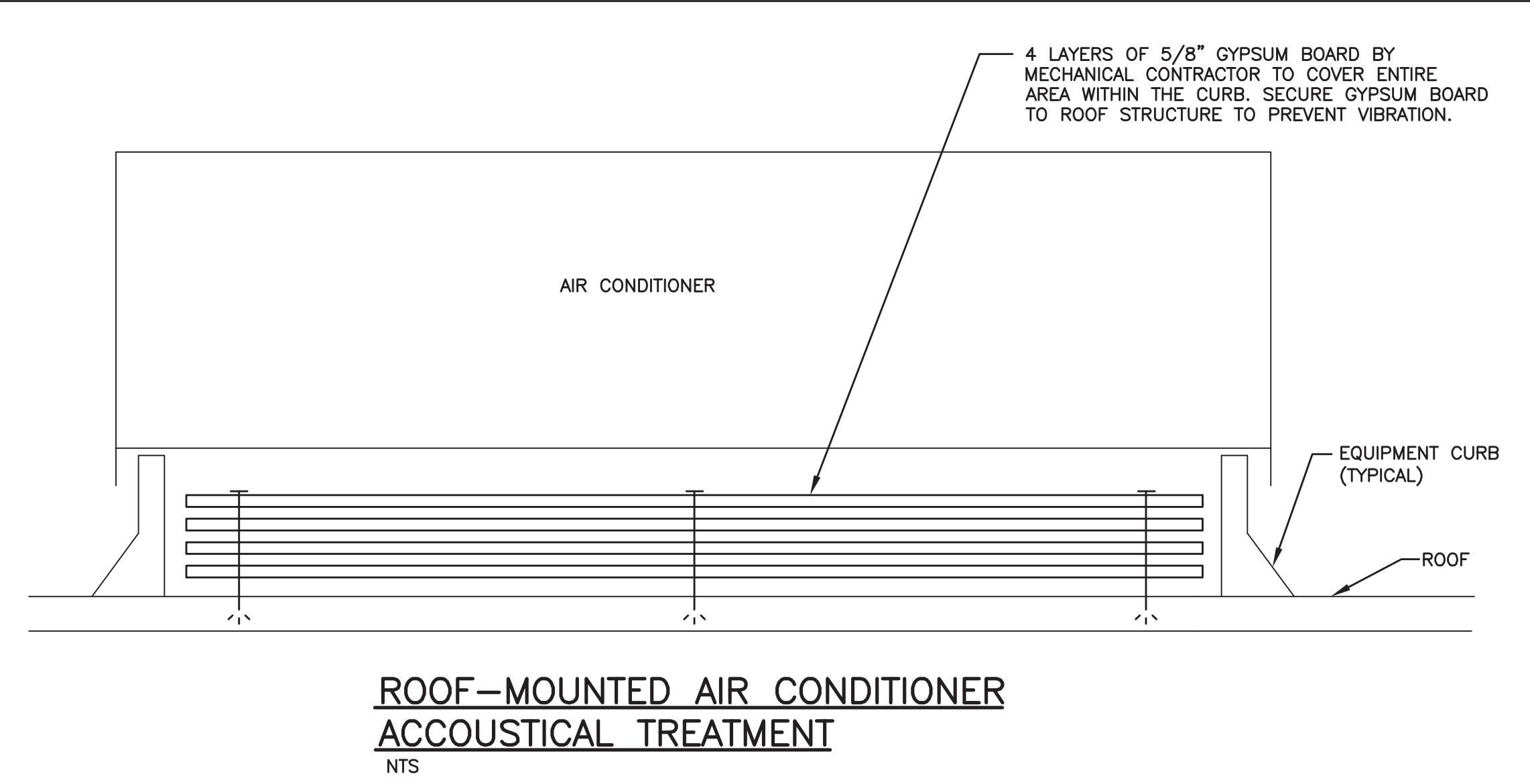
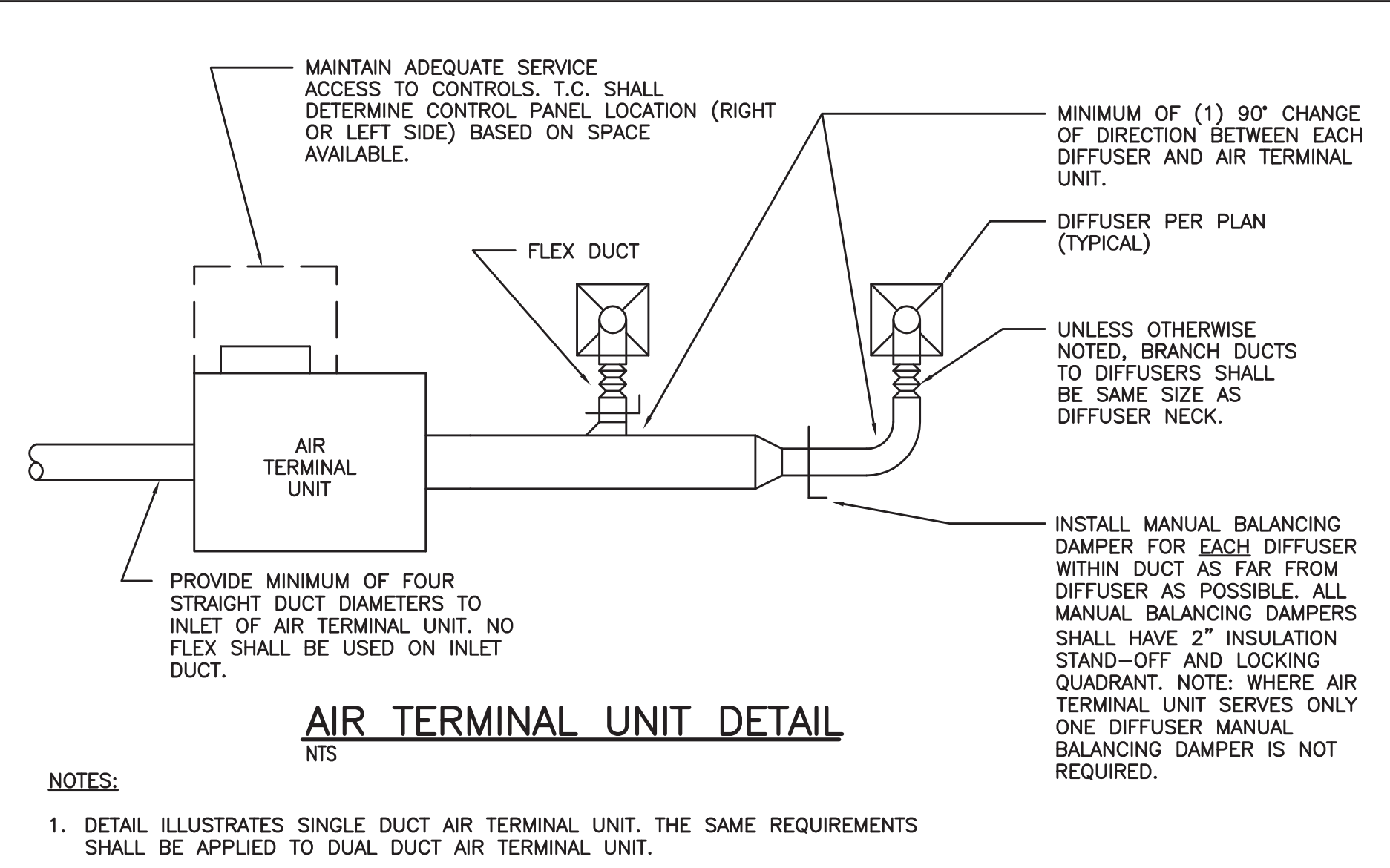
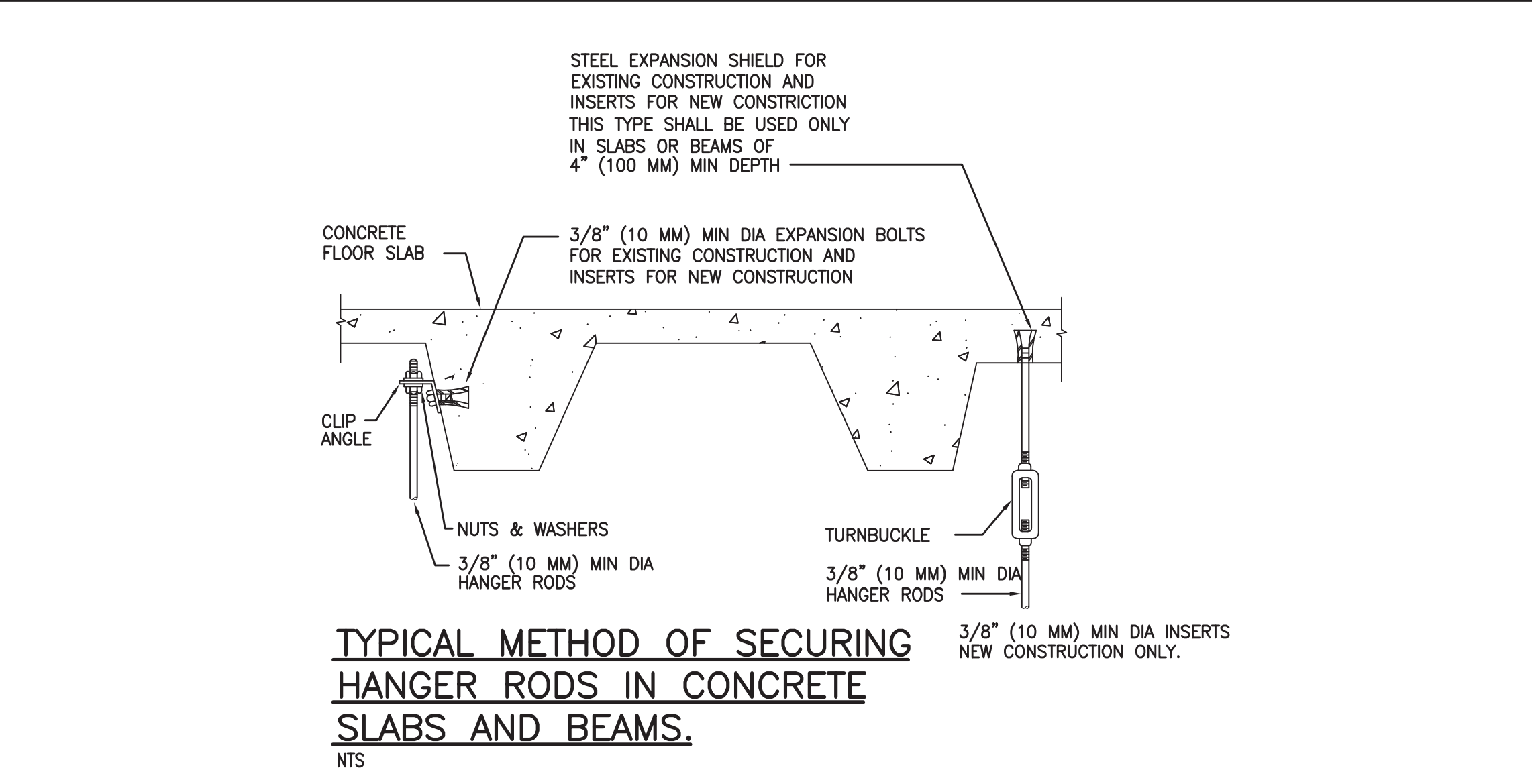
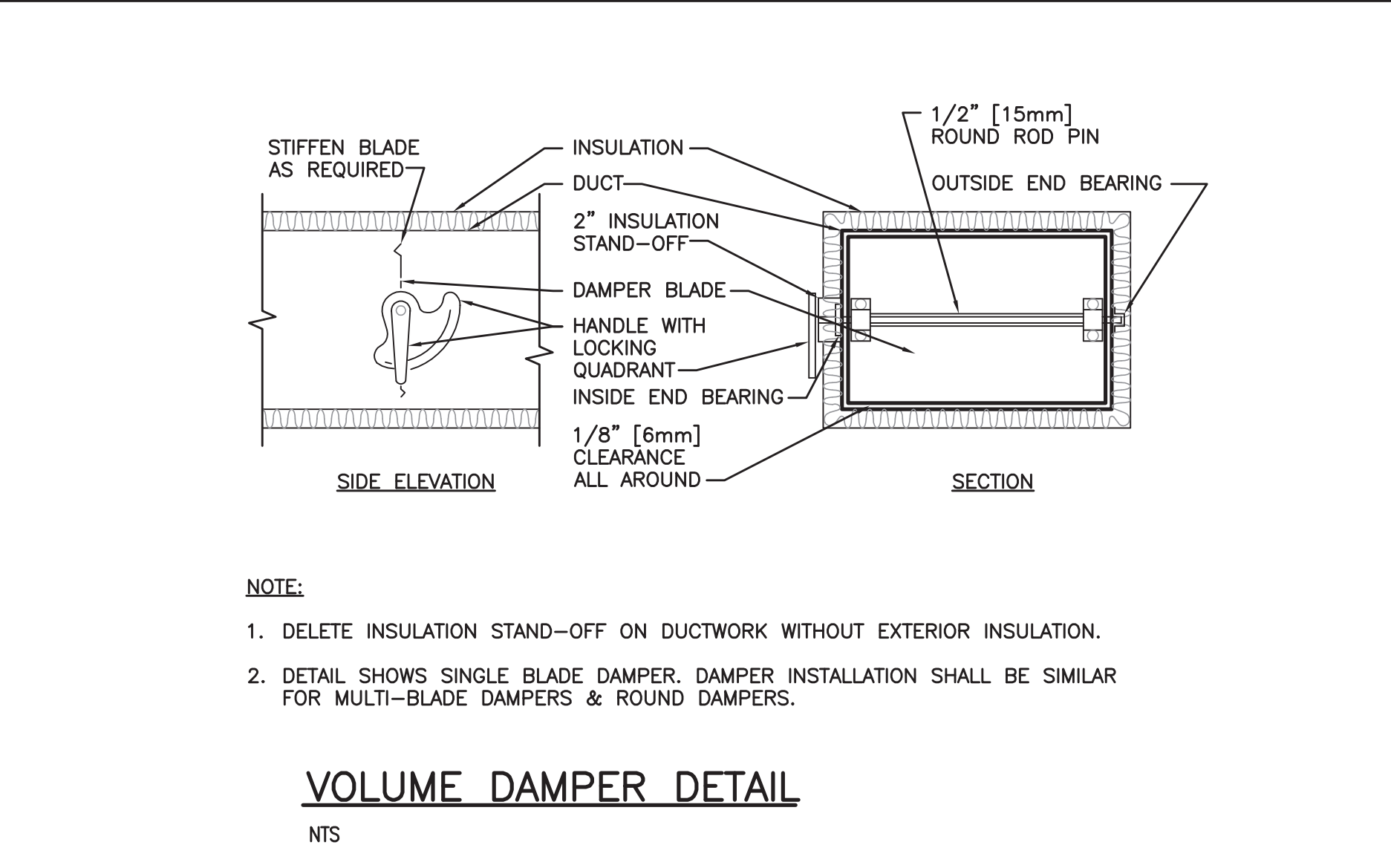
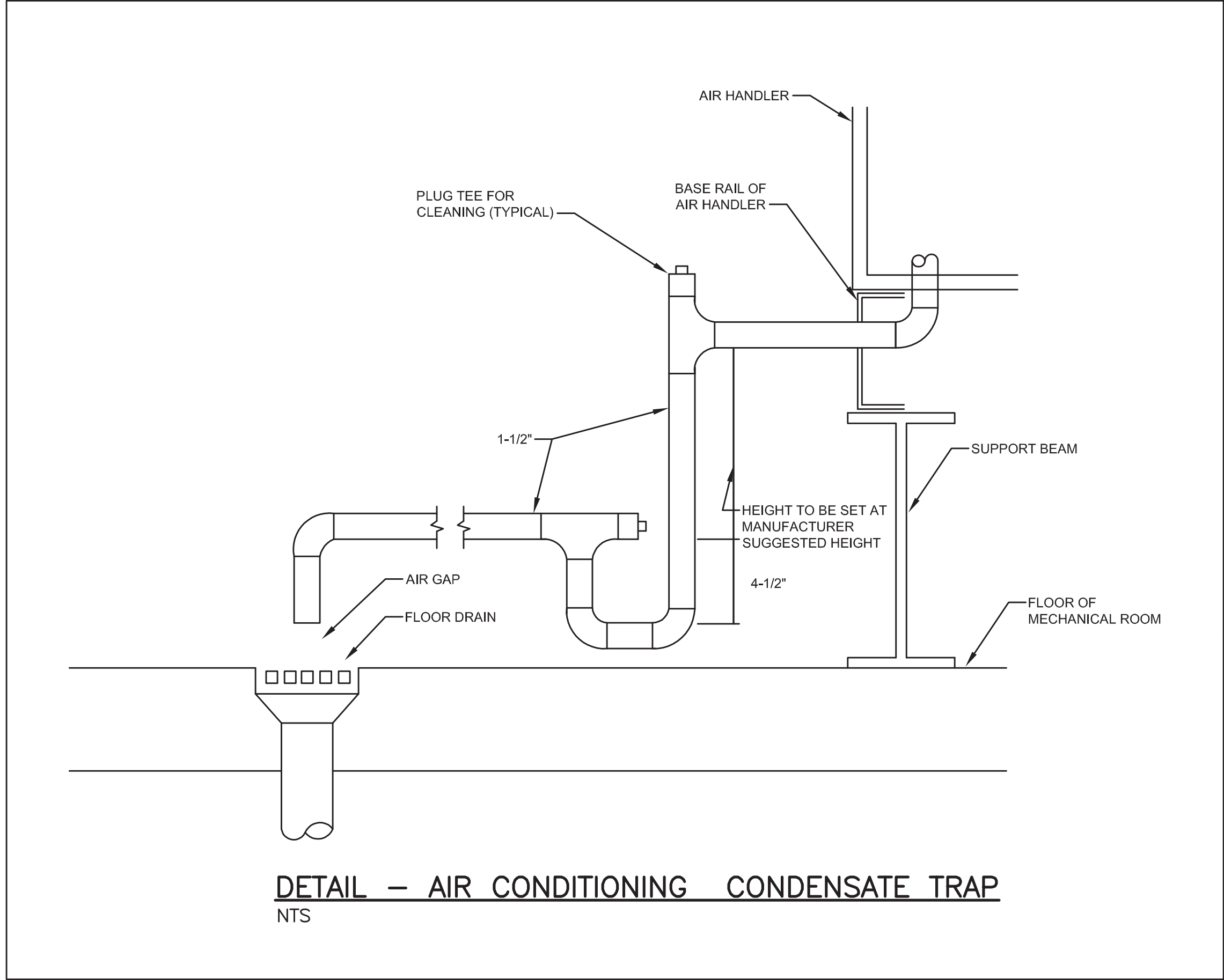
		CONSULTANTS:				ARCHITECT/ENGINEERS:		 FREDRICK, FREDRICK & HELLER ENGINEERS, INC. 12027 872 EAST ROYALTON ROAD BROWNSVILLE, OHIO 44147 TEL: (440) 360-9888 FAX: (440) 360-9889		Drawing Title FIRST FLOOR PLUMBING DEMO AND NEW PLAN		Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2		Project Number 541-13-106		Office of Construction and Facilities Management  Department of Veterans Affairs	
												Building Number 1					
								Approved: Project Director		Location 10701 E. BLVD., CLEVELAND, OHIO 44107		Drawing Number 1-P2					
FINAL CD SUBMISSION		03-24-13								Date 03/29/13		Checked By WFW		Drawn By JWF			
Revisions:		Date															






FOR CONSTRUCTION

		CONSULTANTS:		ARCHITECT/ENGINEERS:	 <p>FREDRICK, FREDRICK & HELLER ENGINEERS, INC. 672 EAST WATKINSON ROAD BROADVIEW HTS., OHIO 44147 TEL (440) 340-9999 FAX (440) 340-9990</p>	Drawing Title	Drawing Title	Project Number	Office of Construction and Facilities Management
						SECOND FLOOR PLUMBING DEMO AND NEW PLAN	VAMC UPGRADE LEARNING EXCHANGE - PHASE 2	541-13-106	
						Approved: Project Director	Location	Building Number	
							10701 E. BLVD., CLEVELAND, OHIO 44107	1	
							Date	Drawn By	
							03/29/13	WFW JWF	
FINAL CD SUBMISSION	03-24-13							1-P3	 Department of Veterans Affairs
Revisions:	Date								

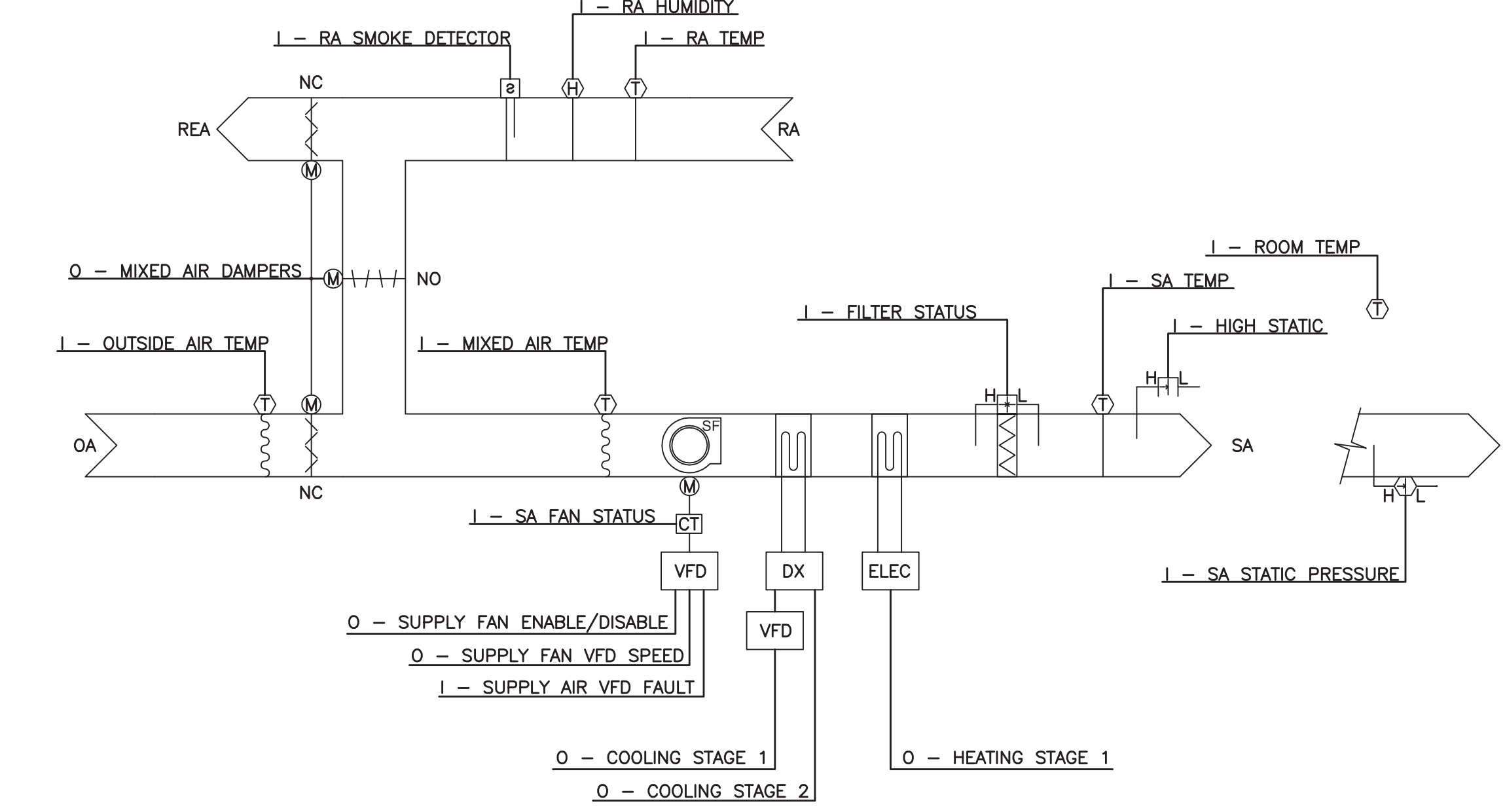
three inches = one foot
one and one half inches = one foot
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one eighth inch = one foot



FOR CONSTRUCTION

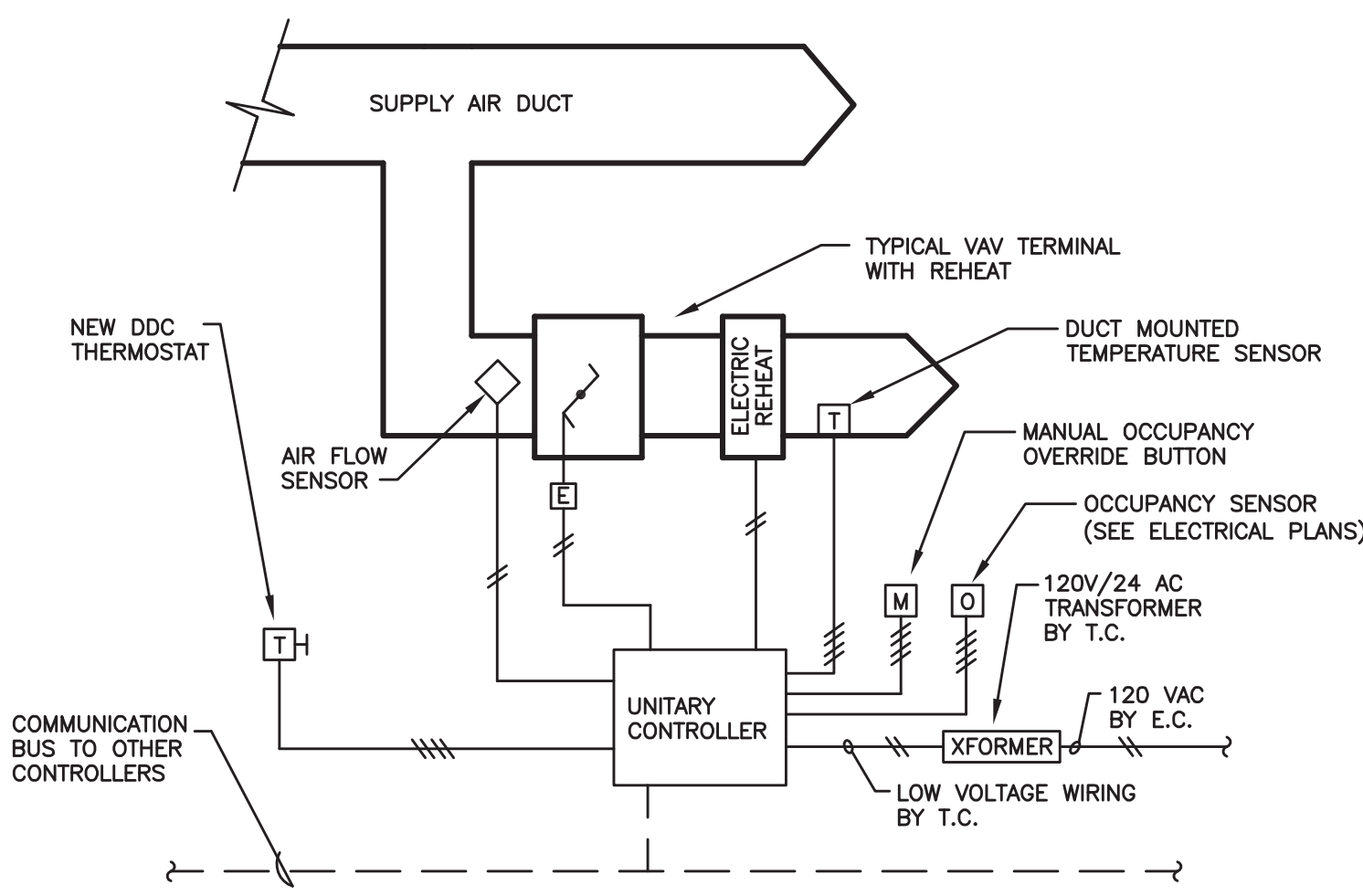
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									Building Number 1		Drawing Number 1-M2								
									Approved: Project Director		Location 10701 E. BLVD., CLEVELAND, OHIO 44107		Date 03/29/13		Checked By WFW		Drawn By JWF		
FINAL CD SUBMISSION		03-24-13			12027 03/29/13		 FREDERICK, FREDRICK & HELLER ENGINEERS, INC. 675 EAST HAYSTACK ROAD BROADVIEW HTS., OHIO 44147 TEL (440) 346-9888 FAX (440) 346-9889												
Revisions:		Date																 Department of Veterans Affairs	

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SEQUENCE OF OPERATION FOR ROOFTOP AIR HANDLING UNIT (RTU-1 THRU RTU-4)

1. RUN CONDITIONS -
 - 1.1 OCCUPIED MODE:
 - A. DURING OCCUPIED HOURS (0700 TO 1800)(ADJ.)
 - (1) THE UNIT FAN SHALL RUN CONTINUOUSLY.
 - (2) THE UNIT SHALL SEQUENCE HEATING AND COOLING TO MAINTAIN 55° F LEAVING AIR SETPOINT.
 - (3) OUTSIDE AIR DAMPER(S) SHALL BE OPERABLE (OPEN TO MINIMUM POSITION).
 - (4) ECONOMIZER SHALL BE ABLE TO BE ENABLED.
 - B. DURING UNOCCUPIED HOURS (1800 TO 0700)(ADJ.)
 - (1) THE UNIT FAN SHALL BE OFF, UNLESS ON SPACE CALL FOR HEAT/COOL. (INTERMITTENT OPERATION)
 - (2) ON CALL FOR COOLING:
 - (a) THE UNIT SHALL SEQUENCE UNIT COOLING TO MAINTAIN 55° F LEAVING AIR SETPOINT.
 - (b) ECONOMIZER SHALL BE ABLE TO BE ENABLED.
 - (3) ON CALL FOR HEATING: THE UNIT SHALL SEQUENCE UNIT HEATING TO MAINTAIN 55° F LEAVING AIR SETPOINT.
 - (4) OUTSIDE AIR DAMPER(S) SHALL BE CLOSED, UNLESS ECONOMIZER COOLING IS REQUIRED.
 - (5) UNIT VAV BOX OCCUPANCY CONTROLS SHALL BE LOCKED OUT. ALL BOXES SHALL REVERT TO THEIR INDIVIDUAL MINIMUM UNOCCUPIED AIR FLOW RATES.
 - 1.2 SETBACK CONDITIONS:
 - A. EACH VAV BOX TEMPERATURE SENSOR SHALL BE ABLE TO MODULATE UNIT COOLING/HEATING DURING UNOCCUPIED MODE.
 - B. USER OVERRIDE: ON USER INPUT TO SPACE TEMPERATURE SENSOR, THE SYSTEM SHALL OPERATE AS OCCUPIED FOR 60 MINUTES (ADJ.).
 - 1.4 ALARMS:
 - A. HIGH LEAVING AIR TEMPERATURE
 - B. LOW LEAVING AIR TEMPERATURE
 - C. OPEN OUTSIDE AIR DAMPER DURING UNOCCUPIED MODE.
2. SMOKE DETECTION
 - 2.1 THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SMOKE DETECTOR STATUS. ALL SMOKE DAMPERS SHALL CLOSE.
3. SUPPLY FAN
 - 3.1 THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.
 - 3.2 TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.
 - 3.3 THE CONTROLLER SHALL MODULATE THE SUPPLY FAN VFD TO MAINTAIN PRESSURE, 0.75" SP (ADJ.), SETPOINT AT SUPPLY AIR PRESSURE SENSOR. THE SENSOR SHALL BE LOCATED 2/3 DOWN THE LONGEST BRANCH.
 - 3.4 THE SUPPLY FAN VFD SPEED SHALL NOT DROP BELOW 30% (ADJ.).
 - 3.5 ALARMS:
 - A. SUPPLY FAN FAILURE
 - B. SUPPLY FAN IN HAND
 - C. SUPPLY FAN RUNTIME EXCEEDED
 - D. HIGH DISCHARGE STATIC (1.75" SP, ADJ.)
 - E. LOW DUCT STATIC (0.3" SP, ADJ.)
4. COOLING COIL (DX)
 - 4.1 THE COOLING SHALL BE STAGED TO MAINTAIN COOLING SETPOINT, DISCHARGE AIR TEMPERATURE OF 55 DEG F (ADJ.)
 - 4.2 TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE DELAY BETWEEN STAGES. EACH STAGE SHALL HAVE A USER DEFINABLE MINIMUM RUNTIME.
- 4.3 VARIABLE REFRIGERANT COMPRESSOR(S) SHALL MODULATE TO BEST LOAD MATCH CONNECTED LOAD.
- 4.4 THE COOLING SHALL BE ENABLED WHENEVER ALL THE FOLLOWING ARE TRUE:
 - A. OUTSIDE AIR TEMPERATURE IS GREATER THAN 60 DEG F (ADJ.)
 - B. THE ECONOMIZER IS DISABLED OR FULLY OPEN
 - C. THE SUPPLY AIR TEMPERATURE IS ABOVE COOLING SETPOINT.
 - D. THE SUPPLY FAN STATUS IS ON.
 - E. THE HEATING IS NOT ACTIVE.
5. HEATING (NATURAL GAS)
 - 5.1 THE HEATING CONTROLS SHALL MODULATE THE NATURAL GAS CONTROL VALVE TO MAINTAIN DISCHARGE AIR TEMPERATURE.
 - 5.2 THE HEATING SHALL BE STAGED TO MAINTAIN HEATING SETPOINT, TO PREVENT SHORT CYCLING, THE STAGE SHALL HAVE A USER DEFINABLE MINIMUM RUNTIME.
 - 5.2 THE HEATING SHALL BE ENABLED WHENEVER ALL ARE TRUE:
 - A. OUTSIDE AIR TEMPERATURE IS LESS THAN 60 DEG F (ADJ.)
 - B. THE DISCHARGE AIR TEMPERATURE IS BELOW HEATING SETPOINT.
 - C. THE SUPPLY FAN STATUS IS ON.
 - D. THE COOLING IS NOT ACTIVE.
6. ECONOMIZER
 - 6.1 THE ECONOMIZER DAMPERS SHALL MODULATE TO MAINTAIN A SETPOINT 2 DEG F (ADJ.) LESS THAN THE COOLING SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM POSITION OPEN WHEN NOT IN ECONOMIZER.
 - 6.2 THE ECONOMIZER SHALL BE ENABLED WHENEVER ALL ARE TRUE:
 - A. OUTSIDE AIR TEMPERATURE IS LESS THAN 65 DEG F (ADJ.)
 - B. OUTSIDE AIR TEMPERATURE IS LESS THAN RETURN AIR TEMPERATURE.
 - C. SUPPLY FAN STATUS IS ON.
 - 6.3 THE ECONOMIZER SHALL CLOSE WHENEVER MIXED AIR TEMPERATURE DROPS TO 40 DEG F (ADJ.) OR ON LOSS OF SUPPLY FAN STATUS
7. GENERAL:
 - 7.1 OUTSIDE AIR DAMPER SHALL CLOSE AND RETURN AIR DAMPER SHALL BE OPEN WHEN THE UNIT IS OFF.
8. FILTERS:
 - 8.1. THE CONTROLLERS SHALL MONITOR FILTER STATUS
 - 8.2. ALARMS
 - A. PREFILTER CHANGE REQUIRED
9. DEMAND CONTROL VENTILATION
 - 9.1 DEMAND CONTROL VENTILATION SHALL ONLY BE ACTIVE DURING OCCUPIED MODE AND WHEN ECONOMIZER IS OFF.
 - 9.2 EACH RTU SHALL HAVE A MINIMUM OF THREE (3) CRITICAL ZONES (TO BE FIELD ESTABLISHED).
 - 9.3 UNDER NORMAL CONDITIONS, THE OUTSIDE AIR SET POINT SHALL BE SET AT 10% OPEN.
 - 9.4 CARBON MONOXIDE SENSORS IN THE RETURN OF EACH CRITICAL ZONE SHALL ESTABLISH "OA OVERRIDE MODE".
 - 9.5 DURING "OA OVERRIDE MODE":
 - A. OPEN OA DAMPER AN ADDITIONAL 5% (ADJ.)
 - B. REVIEW CRITICAL ZONE FOR 15 MINUTES (ADJ.)
 - C. IF CRITICAL ZONE IS IN CONTINUED ALARM, THAN OPEN OA DAMPER ADDITIONAL 5% (ADJ.).
 - D. REPEAT UNTIL ZONE IS NO LONGER IN ALARM OR MAXIMUM OUTSIDE AIR POSITION IS MET (35%).



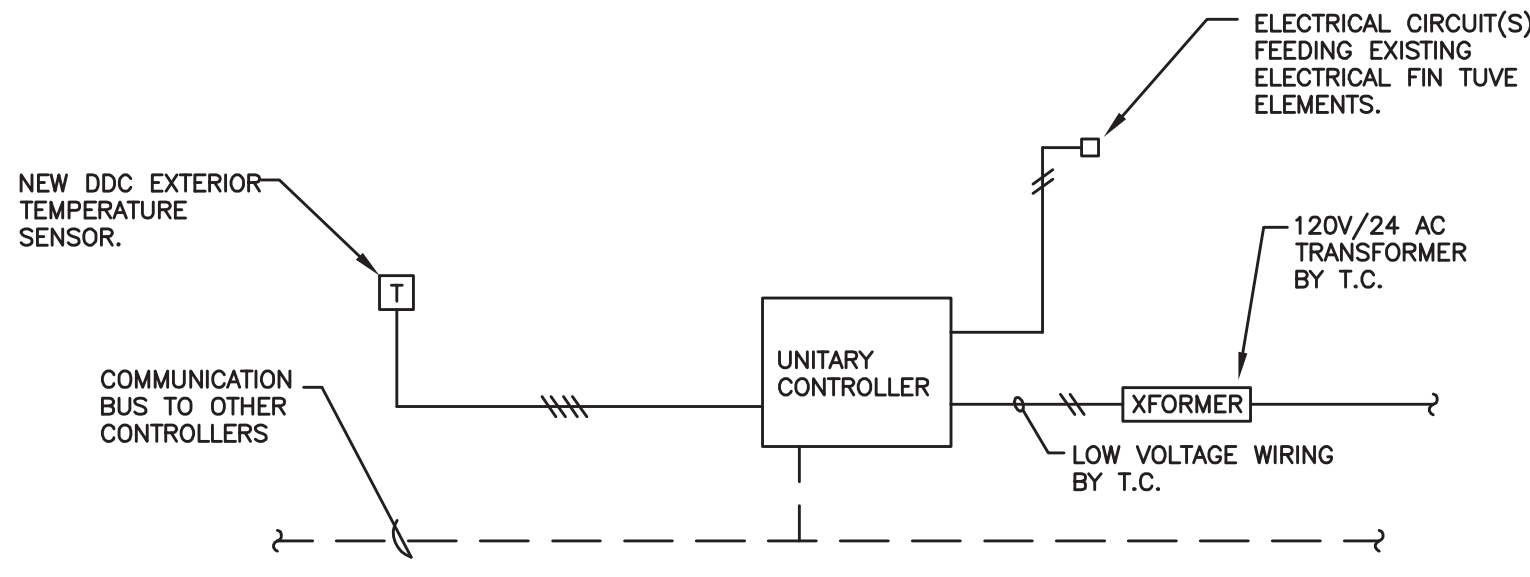
SEQUENCE OF OPERATION FOR VAV BOXES

- OPERATION (REFER TO VAV SCHEDULE):
- A. SPACE THERMOSTAT SHALL MODULATE DAMPER TO MAINTAIN SET POINT.
 - B. ON CALL FOR HEAT, RETURN DAMPER TO MINIMUM POSITION AND MODULATE ELECTRIC RESISTANCE HEAT ELEMENT TO MAINTAIN SETPOINT.
 - C. DUCT MOUNTED TEMPERATURE SENSOR SHALL REPORT REHEAT COIL LEAVING AIR TEMPERATURE TO BUILDING AUTOMATION SYSTEM.
- OCCUPANCY CONTROL (APPLIES TO ALL VAV BOXES):
- A. OCCUPANCY SHALL BE DETERMINED FROM ELECTRICAL LIGHTING OCCUPANCY SENSOR SYSTEM FOR RESPECTIVE SERVICE AREA. CONTRACTOR SHALL TIE INTO ELECTRICAL OCCUPANCY SENSOR VIA AUXILIARY DRY CONTACTS ON SENSORS. REFER TO ELECTRICAL PLANS FOR ADDITIONAL INFORMATION.
 - B. ROOM OVERRIDE SHALL BE POSSIBLE FROM MANUAL OCCUPANCY BUTTON ON TEMPERATURE SENSOR. OVERRIDE SHALL BE LIMITED TO 60 MINUTES (ADJ.)
 - C. OCCUPIED: VAV TERMINAL SHALL OPERATE UNDER STANDARD COOLING/HEATING MODES TO MAINTAIN ROOM THERMOSTAT SETPOINTS AS LISTED IN ROOM DESIGN SCHEDULE ON DRAWING 1-H1.
 - D. UNOCCUPIED:
 1. VAV TERMINAL SHALL RESET TO UNOCCUPIED MINIMUM. UNOCCUPIED MINIMUM SHALL BE 50% OF OCCUPIED MINIMUM (OCCUPIED MINIMUM IS LISTED MINIMUM AIR FLOW IN VAV SCHEDULE).
 2. VAV TERMINAL SHALL OPERATE COOLING/HEATING MODES TO MAINTAIN 'UNOCCUPIED' SPACE THERMOSTAT SETPOINTS:
- a. HEATING: 68° F (ADJ.)
 - b. COOLING: 78° F (ADJ.)

GENERAL CONTROLS NOTES:

- A. IN DIAGRAMS, 'I' INDICATES AN INPUT, 'O' INDICATES AN OUTPUT.
- B. DAMPER OPERATORS TO BE PROVIDED BY TEMPERATURE CONTROLS CONTRACTOR.
- C. TEMPERATURE CONTROL TEST SHALL INCLUDE, BUT NOT BE LIMITED TO:
 - DAMPER OPERATION
 - VALVE ACTUATION RESPONSE AND VALIDATION OF CORRECT OPERATION
 - VERIFIED ENTIRE CONTROL SEQUENCE OPERATES PER DESIGN
 - ACCOUNT FOR ALL CONTROL POINTS LISTED
- D. ALL SYSTEMS SHALL BE COMMISSIONED. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- E. TEMPERATURE CONTROLS SHALL BE ANDOVER. ALL CONTROLS WORK SHALL INTERFACE WITH EXISTING ANDOVER BUILDING CONTROL SYSTEM.
- F. TEMPERATURE CONTROL SYSTEM SHALL MONITOR STEAM BTU METER AND REPORT VOLUMETRIC FLOW, TEMPERATURE, PRESSURE, DENSITY, AND MASS FLOW READINGS FROM METER TO BUILDING AUTOMATION SYSTEM.
- G. TEMPERATURE CONTROL SYSTEM SHALL MONITOR THE CHILLED WATER BTU METER AND REPORT BTU RATE, TON RATE, FLOW RATE, FLOW VELOCITY, MASS FLOW, TOTAL BTUS, TOTAL TONS, TOTAL FLOW, SIGNAL STRENGTH, SIGNAL QUALITY, LIQUID SONIC VELOCITY, REYNOLDS REGIME TO BUILDING AUTOMATION SYSTEM.
- H. TEMPERATURE CONTROL SYSTEM SHALL TIE-IN ALARMS AND STATUS FROM SEWAGE EJECTOR PUMP AND STORM WATER SUMP PUMP CONTROL PANELS.
- I. TEMPERATURE CONTROL SYSTEM SHALL TIE-IN ALARMS FROM ELECTRIC CONDENSATE PUMPS CP-1 AND CP-2.
- J. BUILDING AUTOMATION SYSTEM SHALL GENERATE AN ALARM ON HIGH LEVEL OR LEAKAGE OF DECONTAMINATION TANK.

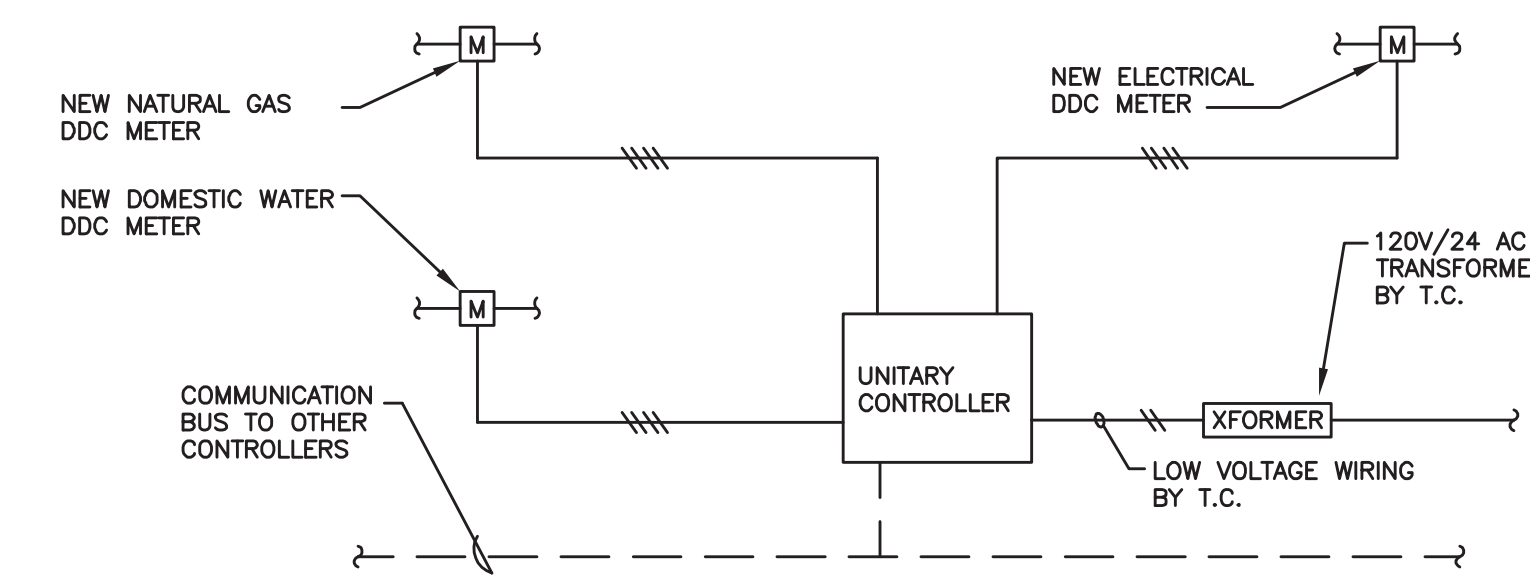
CONTROLS MUST BE COMPLIANT WITH NEW VA CONTROLS SYSTEM DEFINED UNDER CONTRACT IN: PROJECT. NO. 541-10-1014 SPEC SECTION 25-99-99.



FINNED TUBE RADIATION CONTROL DIAGRAM

SEQUENCE OF OPERATION FOR FINNED TUBE RADIATION

- RUN CONDITIONS:
- A. ELECTRIC BASEBOARD CONTROL SHALL LOCK OUT CONTROL ABOVE 60 DEG F. (ADJ.)
 - B. EXISTING LOCAL CONTROLS SHALL MODULATE THERMOSTAT.

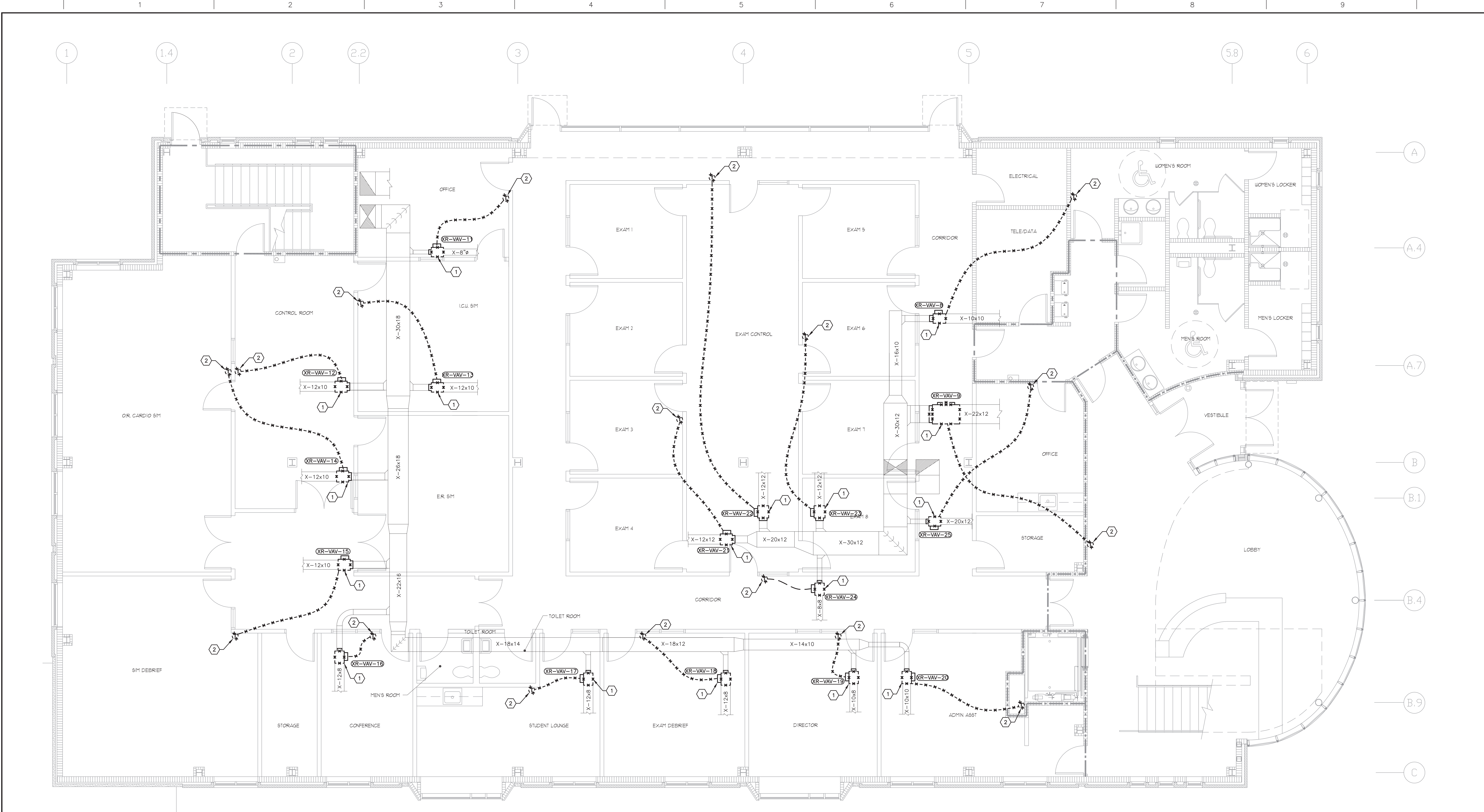


UTILITY METERING

FOR CONSTRUCTION

CONSULTANTS:		ARCHITECT/ENGINEERS:		Drawing Title HVAC CONTROL DETAILS		Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2		Project Number 541-13-106		Office of Construction and Facilities Management	
				Approved: Project Director		Location 10701 E. BLVD., CLEVELAND, OHIO 44107		Building Number 1		Department of Veterans Affairs	
						Date 03/29/13		Drawing Number 1-M3			
FINAL CD SUBMISSION		03-24-13				Checked By WFW		Drawn By JWF			
Revisions:		Date									



three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot



FIRST FLOOR HVAC DEMOLITION PLAN
SCALE: 1/4" = 1'-0"
1

- CODED NOTES:**
- 1 REMOVE TERMINAL BOX COMPLETE. DUCTWORK TO REMAIN.
 - 2 REMOVE EXISTING ROOM THERMOSTAT.

FOR CONSTRUCTION

		CONSULTANTS:				ARCHITECT/ENGINEERS:				Drawing Title FIRST FLOOR HVAC DEMOLITION PLAN		Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2		Project Number 541-13-106		Office of Construction and Facilities Management	
								FREDRICK, FREDRICK & HELLER ENGINEERS, INC. 872 EAST ROYALTON ROAD BROADVIEW HTS., OHIO 44147 TEL: (440) 360-9880 FAX: (440) 360-9889		Approved: Project Director		Location 10701 E. BLVD., CLEVELAND, OHIO 44107		Building Number 1			
FINAL CD SUBMISSION		03-24-13		12027		03/29/13				Date 03/29/13		Checked By WFW		Drawn By JWF		Drawing Number 1-M4	
Revisions:		Date														Department of Veterans Affairs	

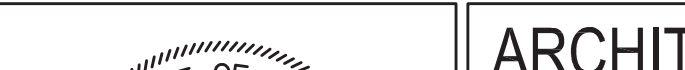


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three quarters inch = one foot
one inch = one foot
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two inches = one foot
three inches = one foot



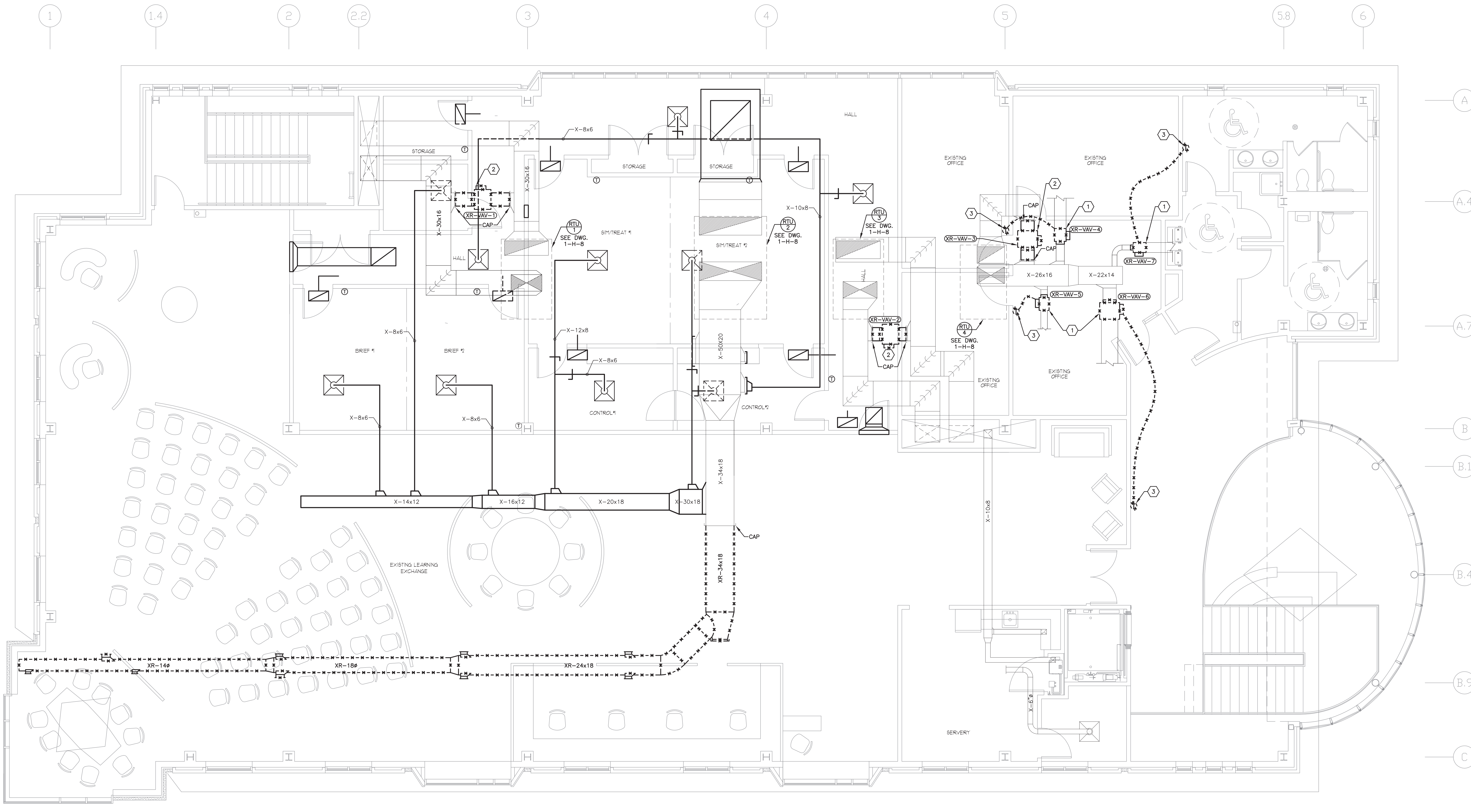
FIRST FLOOR HVAC DUCTWORK PLAN
SCALE: 1/4" = 10'
1

CODED NOTES:
1 INSTALL NEW VAV BOX IN EXISTING DUCTWORK. SEE DWG. 1-M1 FOR SCHEDULE.

FOR CONSTRUCTION

		<div>CONSULTANTS:</div>	<div><div>03/29/13</div></div>	<div>ARCHITECT/ENGINEERS:</div> <div><div>FREDRICK, FREDRICK & HELLER ENGINEERS, INC. 872 EAST ROYALTON ROAD BROADVIEW HTS., OHIO 44147 TEL: (440) 344-9880 FAX: (440) 344-9889</div></div>	<div>Drawing Title</div> <div>FIRST FLOOR HVAC PLAN</div>	<div>Project Number</div> <div>541-13-106</div>	<div>Office of Construction and Facilities Management</div> <div>Department of Veterans Affairs</div>			
					<div>Approved: Project Director</div>	<div>Location</div> <div>10701 E. BLVD., CLEVELAND, OHIO 44107</div>		<div>Building Number</div> <div>1</div>		
<div>FINAL CD SUBMISSION</div>	<div>03-24-13</div>				<div>Date</div>	<div>Date</div> <div>03/29/13</div>		<div>Checked By</div> <div>WFW</div>	<div>Drawn By</div> <div>JWF</div>	<div>Drawing Number</div> <div>1-M5</div>
<div>Revisions:</div>	<div>Date</div>									



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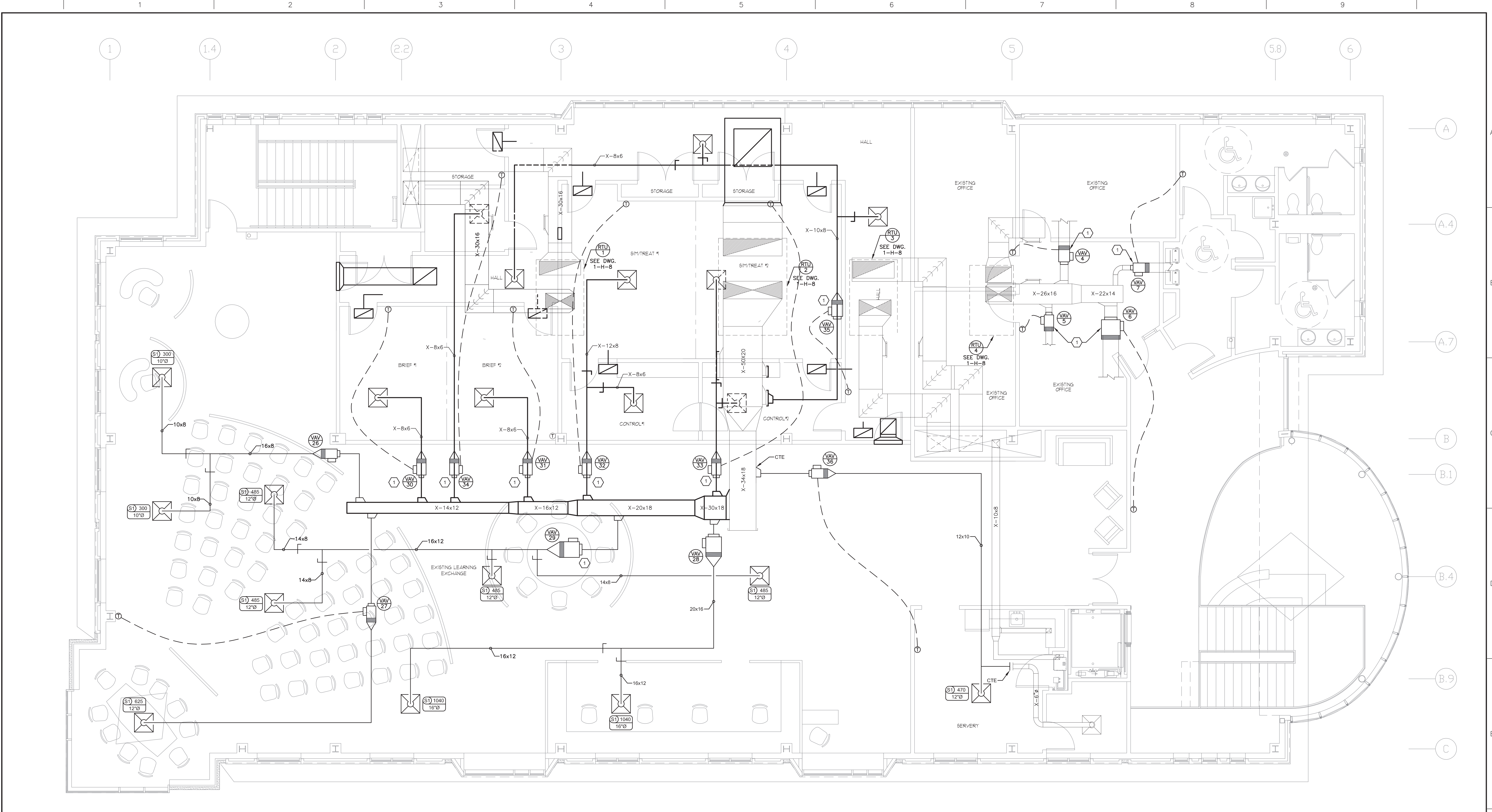
SECOND FLOOR HVAC DEMOLITION PLAN
SCALE: 1/4" = 1'-0"
1

- CODED NOTES:**
- 1 REMOVE TERMINAL BOX COMPLETE. DUCTWORK TO REMAIN.
 - 2 REMOVE BYPASS DAMPER AND ASSOCIATED DUCTWORK BACK TO MAIN AND CAP.
 - 3 REMOVE EXISTING ROOM THERMOSTAT.

FOR CONSTRUCTION

		CONSULTANTS:			ARCHITECT/ENGINEERS:		Drawing Title SECOND FLOOR HVAC DEMOLITION PLAN		Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 1		Project Number 541-13-106		Office of Construction and Facilities Management 	
							Approved: Project Director		Location 10701 E. BLVD., CLEVELAND, OHIO 44107		Building Number 1			
FINAL CD SUBMISSION		03-24-13			13007		Date 03/29/13		Checked By WFW		Drawn By JWF			1-M6
Revisions:		Date			03/29/13									




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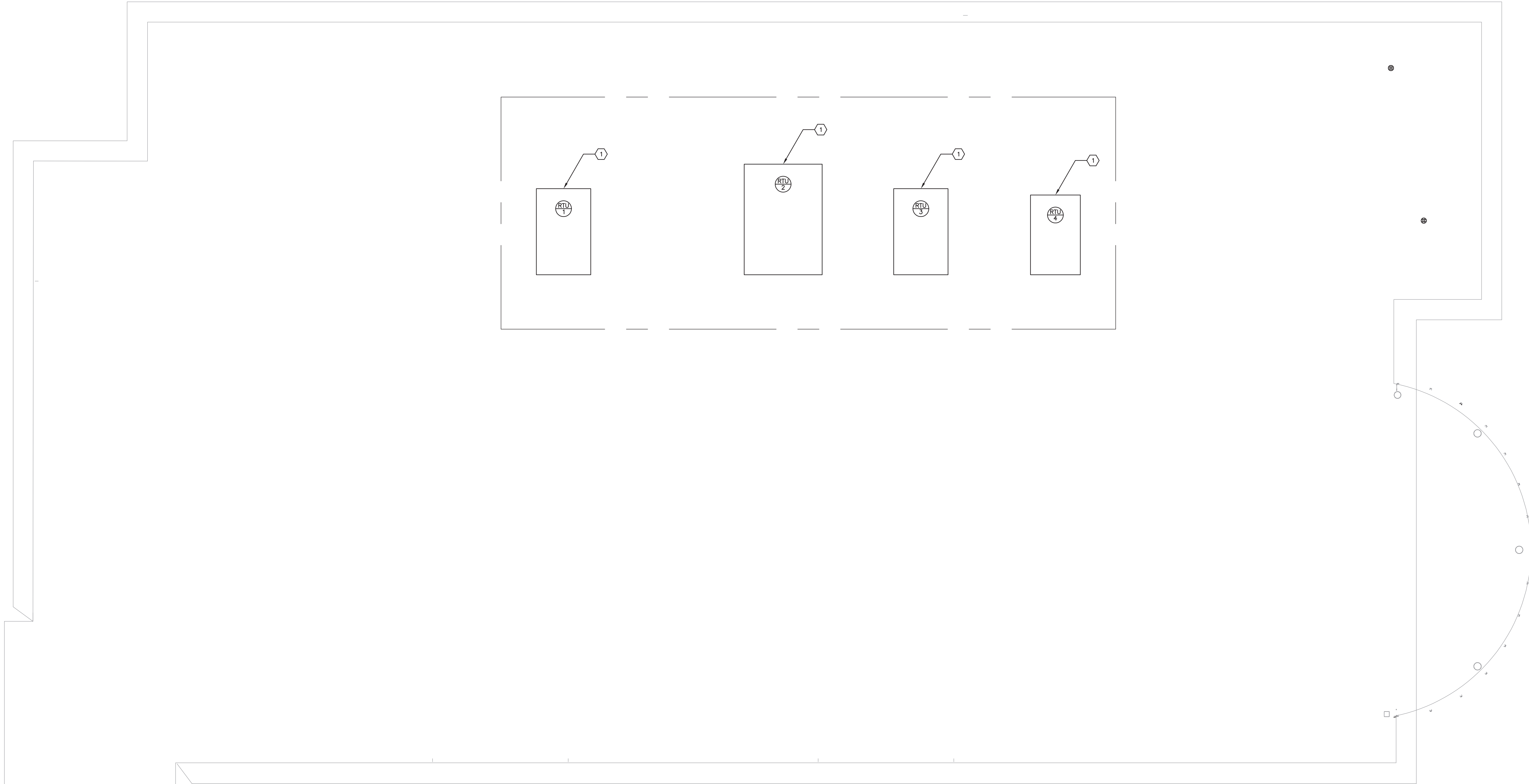
SECOND FLOOR HVAC PLAN
SCALE: 1/4" = 1'-0"

CODED NOTES:	
1	INSTALL NEW VAV BOX IN EXISTING DUCTWORK. SEE DWG. 1-M1 FOR SCHEDULE.

FOR CONSTRUCTION

		<div>CONSULTANTS:</div>	<div></div>	<div>ARCHITECT/ENGINEERS:</div> <div><div>FREDRICK, FREDRICK & HELLER ENGINEERS, INC. 872 EAST ROYALTON ROAD BROADVIEW HTS., OHIO 44147 TEL: (440) 380-9880 FAX: (440) 380-9889</div></div>	<div>Drawing Title</div> <div>SECOND FLOOR HVAC PLAN</div>	<div>Project Title</div> <div>VAMC UPGRADE LEARNING EXCHANGE - PHASE 1</div>	<div>Project Number</div> <div>541-13-106</div>	<div>Office of Construction and Facilities Management</div> <div> Department of Veterans Affairs</div>	
					<div>Building Number</div> <div>1</div>	<div>Location</div> <div>10701 E. BLVD., CLEVELAND, OHIO 44107</div>	<div>Drawing Number</div> <div>1-M7</div>		
<div>FINAL CD SUBMISSION</div>	<div>03-24-13</div>				<div>Approved: Project Director</div>	<div>Date</div> <div>03/29/13</div>	<div>Checked By</div> <div>WFW</div>		<div>Drawn By</div> <div>JWF</div>
<div>Revisions:</div>	<div>Date</div>								

one eighth inch = one foot
one quarter inch = one foot
one half inch = one foot
one inch = one foot
three eighths inch = one foot
three quarters inch = one foot
one and one half inches = one foot
three inches = one foot



ROOF HVAC PLAN
SCALE: 1/4" = 10'
1

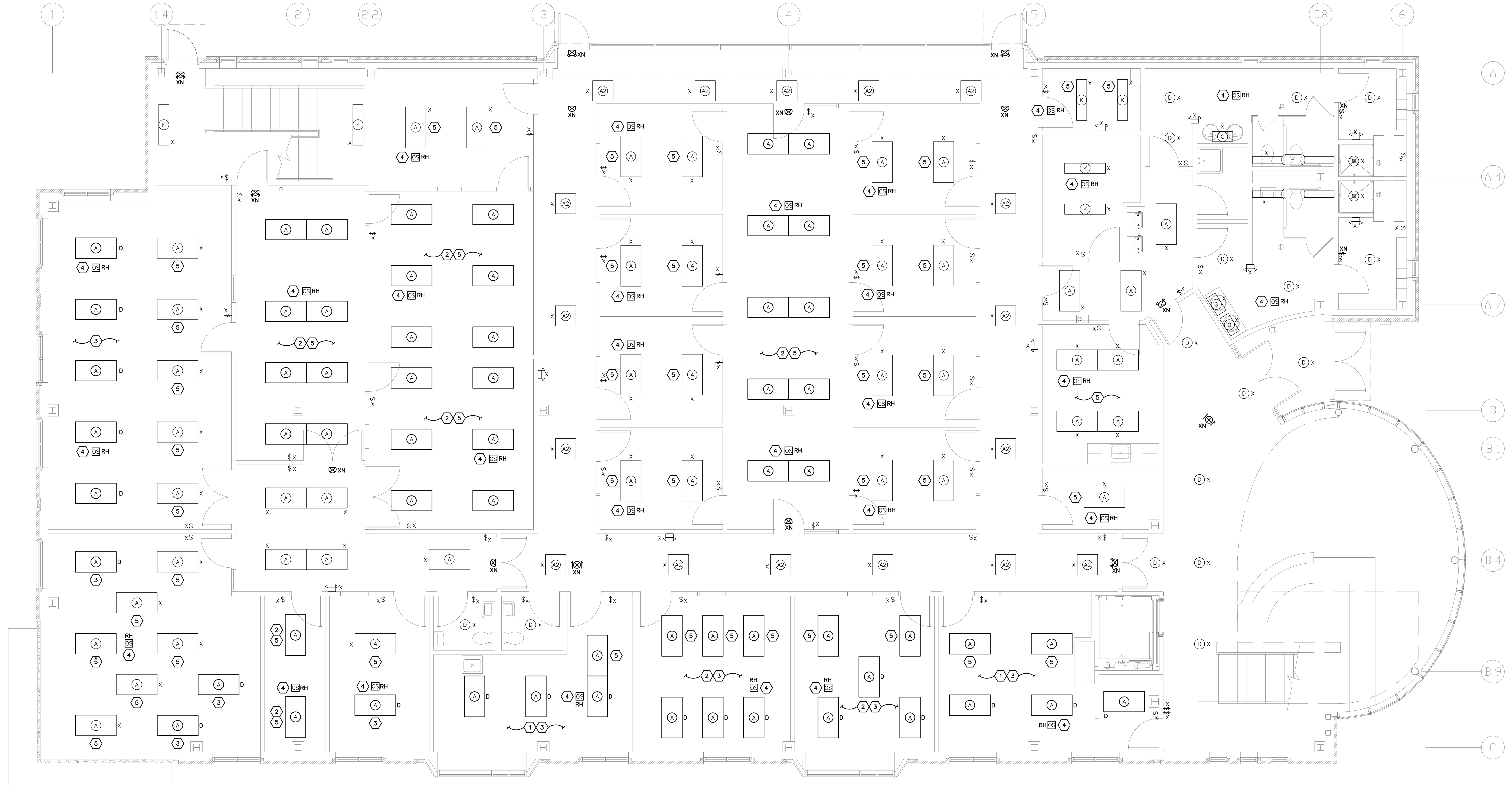
CODED NOTES:
1 REMOVE RTU-1 THRU RTU-4 AND REPLACE WITH NEW UNITS. RECONNECT GAS LINES.

FOR CONSTRUCTION

Revisions:	CONSULTANTS:	ARCHITECT/ENGINEERS:	Drawing Title ROOF HVAC PLAN	Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2	Project Number 541-13-106	Office of Construction and Facilities Management Department of Veterans Affairs
FINAL CD SUBMISSION			Approved: Project Director	Location 10701 E. BLVD., CLEVELAND, OHIO 44107	Building Number 1	
Date 03-24-13			Date 03/29/13	Checked By WFW	Drawn By JWF	

VA FORM 08-623




one eighth inch = one foot
one quarter inch = one foot
one half inch = one foot
three eighths inch = one foot
three quarters inch = one foot
one inch = one foot
two inches = one foot
three inches = one foot
four inches = one foot
five inches = one foot
six inches = one foot
seven inches = one foot
eight inches = one foot
nine inches = one foot
ten inches = one foot
eleven inches = one foot
twelve inches = one foot
thirteen inches = one foot
fourteen inches = one foot
fifteen inches = one foot
sixteen inches = one foot
seventeen inches = one foot
eighteen inches = one foot
nineteen inches = one foot
twenty inches = one foot
twenty one inches = one foot
twenty two inches = one foot
twenty three inches = one foot
twenty four inches = one foot
twenty five inches = one foot
twenty six inches = one foot
twenty seven inches = one foot
twenty eight inches = one foot
twenty nine inches = one foot
thirty inches = one foot
thirty one inches = one foot
thirty two inches = one foot
thirty three inches = one foot
thirty four inches = one foot
thirty five inches = one foot
thirty six inches = one foot
thirty seven inches = one foot
thirty eight inches = one foot
thirty nine inches = one foot
forty inches = one foot
forty one inches = one foot
forty two inches = one foot
forty three inches = one foot
forty four inches = one foot
forty five inches = one foot
forty six inches = one foot
forty seven inches = one foot
forty eight inches = one foot
forty nine inches = one foot
fifty inches = one foot
fifty one inches = one foot
fifty two inches = one foot
fifty three inches = one foot
fifty four inches = one foot
fifty five inches = one foot
fifty six inches = one foot
fifty seven inches = one foot
fifty eight inches = one foot
fifty nine inches = one foot
sixty inches = one foot
sixty one inches = one foot
sixty two inches = one foot
sixty three inches = one foot
sixty four inches = one foot
sixty five inches = one foot
sixty six inches = one foot
sixty seven inches = one foot
sixty eight inches = one foot
sixty nine inches = one foot
seventy inches = one foot
seventy one inches = one foot
seventy two inches = one foot
seventy three inches = one foot
seventy four inches = one foot
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seventy six inches = one foot
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seventy nine inches = one foot
eighty inches = one foot
eighty one inches = one foot
eighty two inches = one foot
eighty three inches = one foot
eighty four inches = one foot
eighty five inches = one foot
eighty six inches = one foot
eighty seven inches = one foot
eighty eight inches = one foot
eighty nine inches = one foot
ninety inches = one foot
ninety one inches = one foot
ninety two inches = one foot
ninety three inches = one foot
ninety four inches = one foot
ninety five inches = one foot
ninety six inches = one foot
ninety seven inches = one foot
ninety eight inches = one foot
ninety nine inches = one foot
one hundred inches = one foot



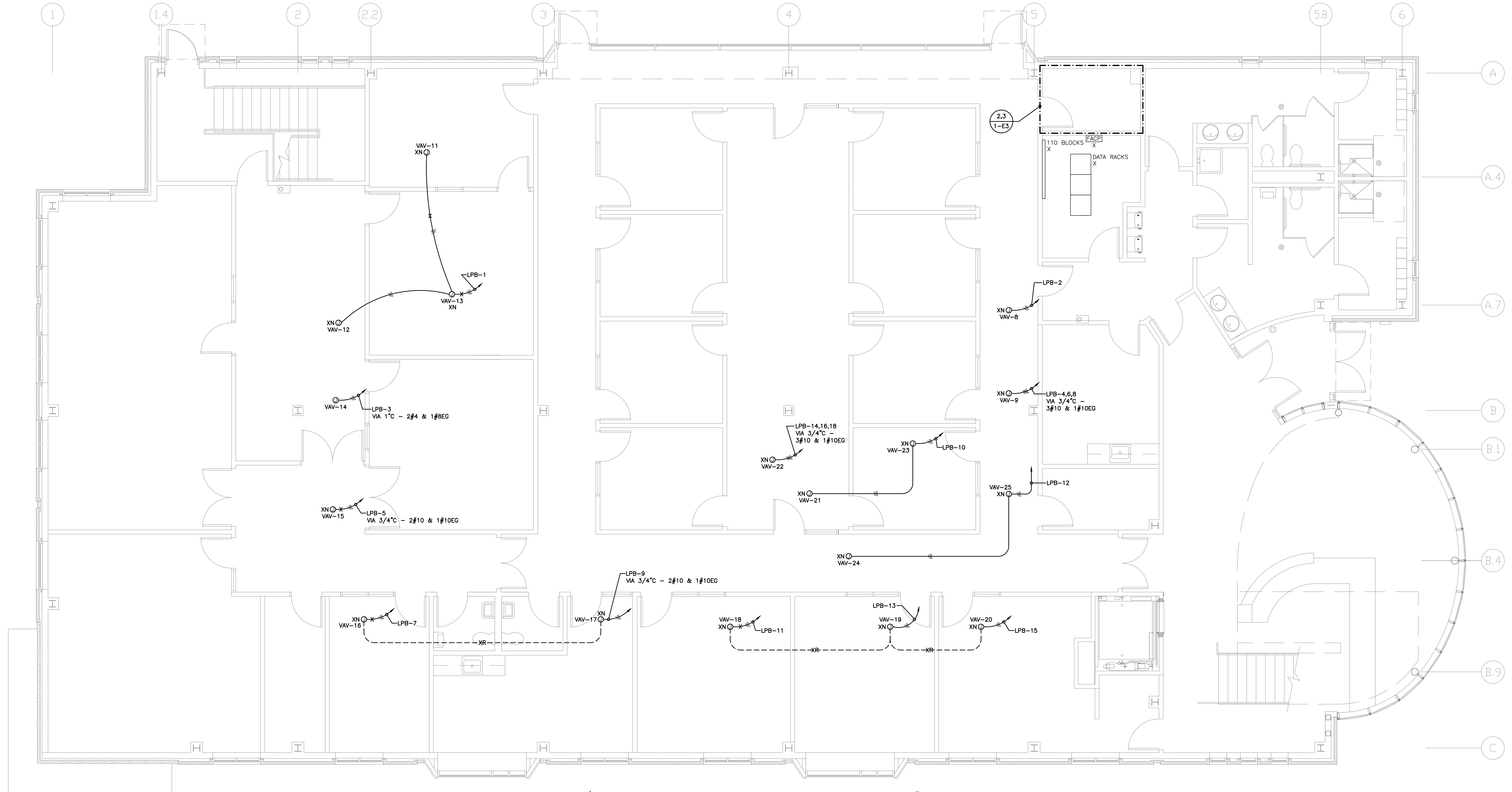
FIRST FLOOR LIGHTING PLAN
SCALE: 1/4" = 1'-0"
1

- CODED NOTES:**
- 1 EXISTING TYPE 'A' FIXTURE HAS (3)32WT8-SP35 LAMPS INSTALLED. CONTRACTOR SHALL CLEAN FIXTURES AND REPLACE ALL LAMPS IN TYPE 'A' FIXTURES WITH (3)28WT8-SP35 LAMPS IN DESIGNATED ROOM. LAMPS SHALL HAVE A MINIMUM 2562 MEAN LUMENS AND A 85 CRI RATING.
 - 2 EXISTING TYPE 'A' FIXTURE HAS (3)32WT8-SP35 LAMPS INSTALLED. CONTRACTOR SHALL CLEAN AND REPLACE ALL LAMPS IN TYPE 'A' FIXTURES WITH (3)28WT8-SP35 LAMPS IN DESIGNATED ROOM. LAMPS SHALL HAVE A MINIMUM 2256 MEAN LUMENS AND A 85 CRI RATING.
 - 3 EXISTING TYPE 'A' FIXTURES IN ROOM. REPLACE ALL FIXTURE BALLASTS DESIGNATED WITH A 'D' WITH INTEGRAL DAYLIGHT HARVESTING BALLAST (GREEN BALLAST, INC. - DAYLIGHT HARVESTING 3 LAMP T8 BALLAST).
 - 4 PROVIDE NEW OCCUPANCY SENSOR IN ROOM AS DESIGNATED. REWIRE ALL ROOM LIGHTING FIXTURES TO BE CONTROLLED BY OCCUPANCY SENSOR AND EXISTING LOCAL SWITCH.
 - 5 PROVIDE NEW PROGRAM RAPID START BALLAST DESIGNED TO BE COMPATIBLE WITH ENERGY SAVINGS T8 LAMPS. BALLAST SHALL HAVE NEMA PREMIUM RATING (NO SUBSTITUTES).

FOR CONSTRUCTION

CONSULTANTS:			ARCHITECT/ENGINEERS:		Drawing Title FIRST FLOOR LIGHTING PLAN	Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2		Project Number 541-13-106		Office of Construction and Facilities Management 			
			 FREDERICK, FREDRICK & HELLER ENGINEERS, INC. 872 EAST ROYALTON ROAD BROADVIEW HTS., OHIO 44147 TEL: (440) 546-9885 FAX: (440) 546-9889		Approved: Project Director		Location 10701 E. BLVD., CLEVELAND, OHIO 44107		Building Number 1				
FINAL CD SUBMISSION Revisions:		12027 03/29/13				Date 03/29/13		Checked By JDM		Drawn By JDM		Drawing Number 1-E2	

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot



FIRST FLOOR POWER PLAN
SCALE: 1/4" = 10'
1

MECHANICAL EQUIPMENT GENERAL NOTES:

M1. MECHANICAL EQUIPMENT SHALL BE CONNECTED COMPLETE PER MANUFACTURER'S WIRING DIAGRAMS AND DETAILS UNLESS OTHERWISE NOTED ON DRAWINGS.

M2. CONTRACTOR SHALL CONCEAL CONDUIT AND WIRING IN WALLS AND ABOVE CEILING AND PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTION TO MECHANICAL EQUIPMENT. PROVIDE RIGID ALUMINUM CONDUITS AT EXTERIOR LOCATIONS. SEAL ALL ROOF PENETRATION WATER-TIGHT AND ALL WALL PENETRATIONS TO MAINTAIN FIRE RATING.

M3. CONTRACTOR SHALL PROVIDE ALL LOCAL DISCONNECTING MEANS FOR ALL MECHANICAL EQUIPMENT, UNLESS EQUIPMENT IS NOTED TO BE FURNISHED WITH INTEGRAL DISCONNECTS. LABEL ALL DISCONNECT SWITCHES TO INDICATE POWER SOURCE AND EQUIPMENT SERVED.

M4. COORDINATE EXACT INSTALLATION LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL PLANS PRIOR TO ROUGH-IN.

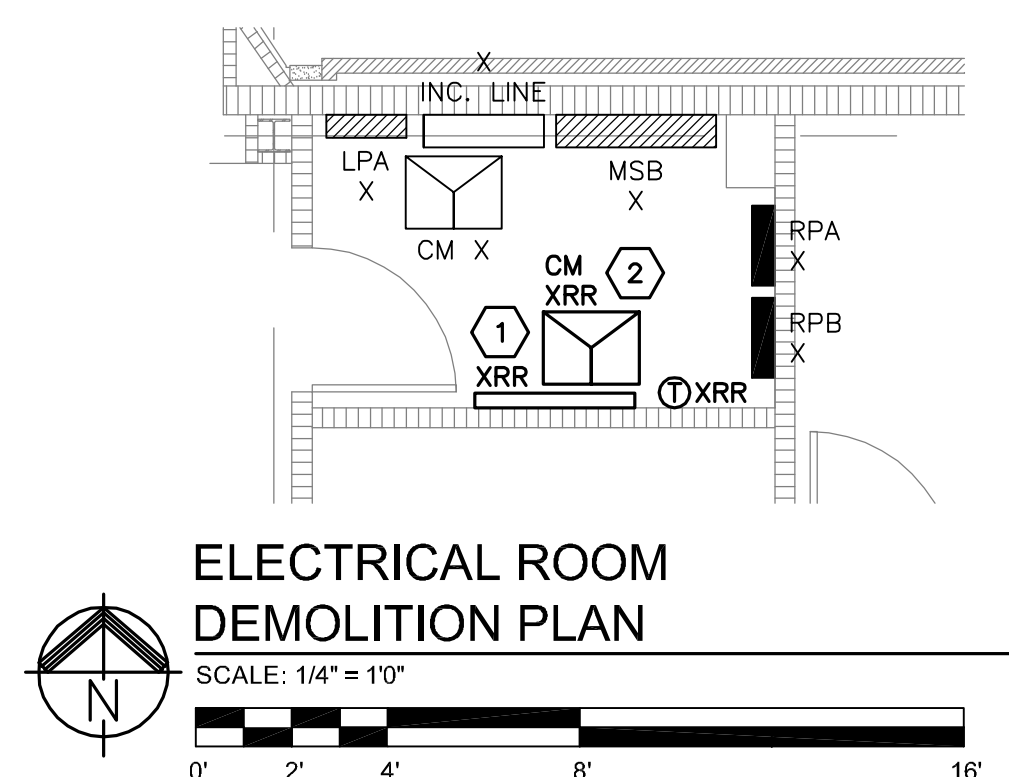
M5. CONDUITS SHALL BE RIGID ALUMINUM AT EXTERIOR LOCATIONS.

M6. SHARED NEUTRALS ARE NOT PERMITTED FOR BRANCH CIRCUITS.

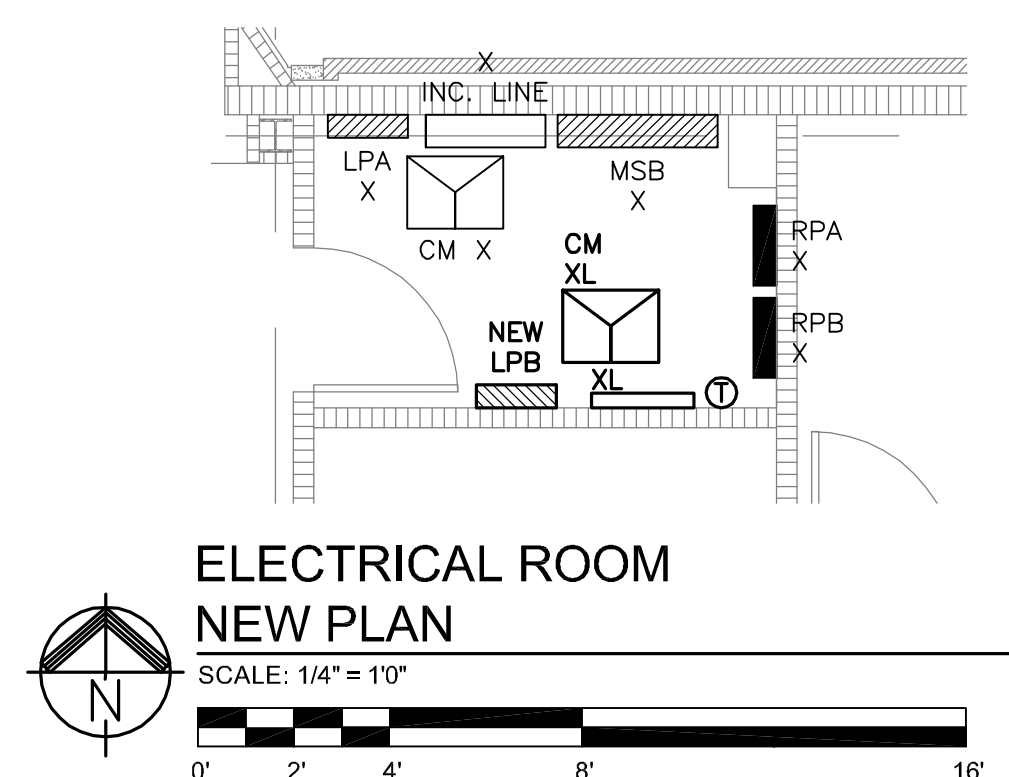
ELECTRICAL PLAN CODED NOTES:

1 CONTRACTOR SHALL RELOCATE EXISTING OUTSIDE LIGHTING CONTACTORS, EXHAUST FAN CONTACTORS, TEMPERATURE PANEL, THERMOSTAT AND CONTROL WIRING COMPLETE TO ALLOW FOR NEW PANELBOARD 'LPB' TO BE INSTALLED.

2 CONTRACTOR SHALL MOVE EXISTING CEILING MOUNTED TRANSFORMER AWAY FROM WALL SO IT IS NOT DIRECTLY ABOVE NEW PANELBOARD 'LPB'. NEW LOCATION OF TRANSFORMER SHALL COMPLY WITH THE NEC 110.25. ADJUST LOCATION OF LIGHTING FIXTURES AS NECESSARY.



ELECTRICAL ROOM DEMOLITION PLAN
SCALE: 1/4" = 10'
2

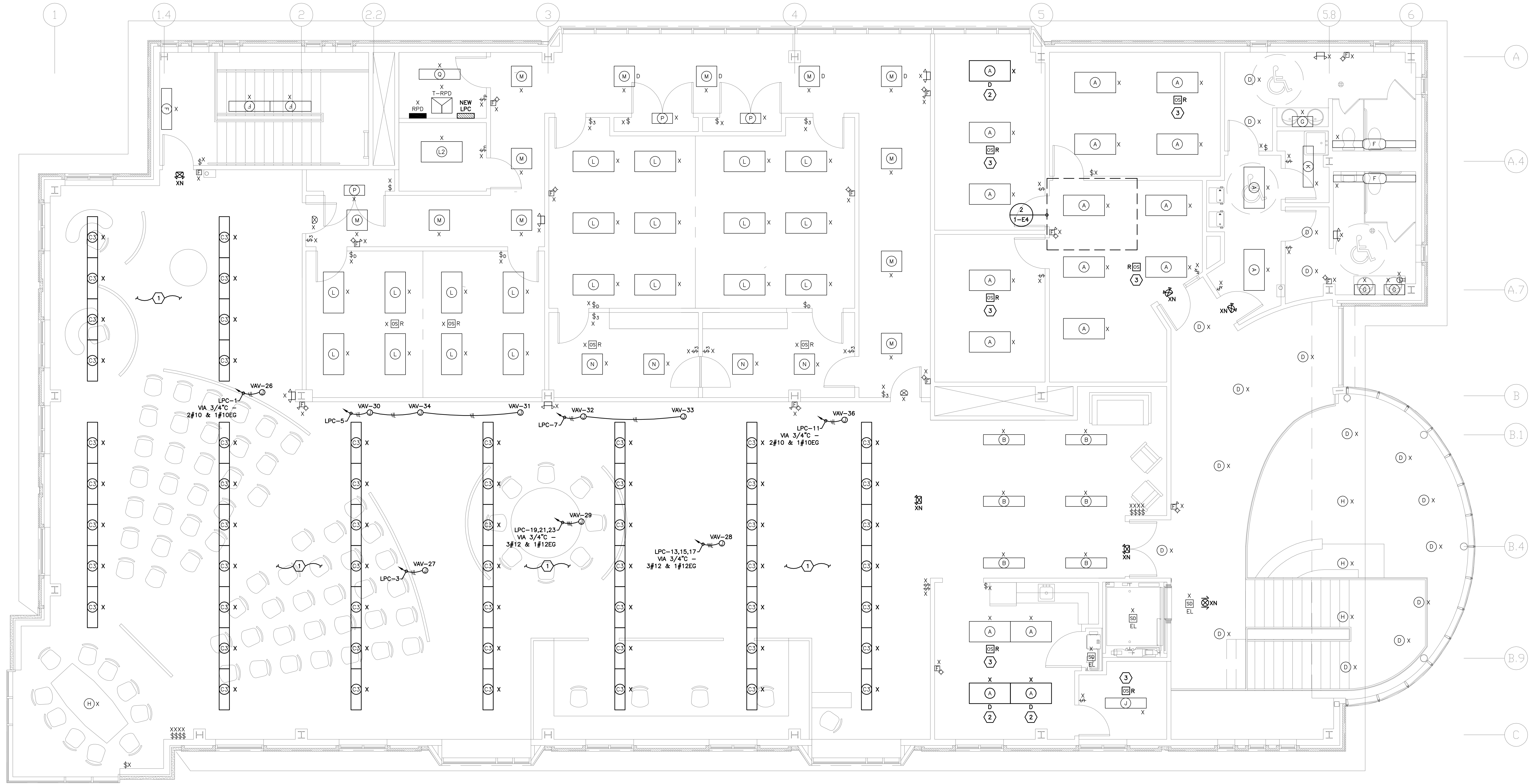


ELECTRICAL ROOM NEW PLAN
SCALE: 1/4" = 10'
3

FOR CONSTRUCTION

<div>CONSULTANTS:</div>		<div>12077 03/29/13</div>	<div>ARCHITECT/ENGINEERS:</div>		<div>Drawing Title FIRST FLOOR POWER PLAN</div>	<div>Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2</div>		<div>Project Number 541-13-106</div>		<div>Office of Construction and Facilities Management</div> <div>Department of Veterans Affairs</div>
<div>12077 03/29/13</div>		<div>12077 03/29/13</div>	<div>ARCHITECT/ENGINEERS:</div>		<div>Approved: Project Director</div>		<div>Location 10701 E. BLVD., CLEVELAND, OHIO 44107</div>		<div>Building Number 1</div>	
<div>12077 03/29/13</div>		<div>12077 03/29/13</div>	<div>ARCHITECT/ENGINEERS:</div>		<div>Date 03/29/13</div>		<div>Checked By MPL</div>	<div>Drawn By JDM</div>	<div>1-E3</div>	

three inches = one foot
one and one half inches = one foot
two quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot



SECOND FLOOR LIGHTING AND POWER PLAN
SCALE: 1/4" = 1' 0"

MECHANICAL EQUIPMENT GENERAL NOTES:

M1. MECHANICAL EQUIPMENT SHALL BE CONNECTED COMPLETE PER MANUFACTURER'S WIRING DIAGRAMS AND DETAILS UNLESS OTHERWISE NOTED ON DRAWINGS.

M2. CONTRACTOR SHALL CONCEAL CONDUIT AND WIRING IN WALLS AND ABOVE CEILING AND PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTION TO MECHANICAL EQUIPMENT. PROVIDE RIGID ALUMINUM CONDUITS AT EXTERIOR LOCATIONS. SEAL ALL ROOF PENETRATION WATER-TIGHT AND ALL WALL PENETRATIONS TO MAINTAIN FIRE RATING.

M3. CONTRACTOR SHALL PROVIDE ALL LOCAL DISCONNECTING MEANS FOR ALL MECHANICAL EQUIPMENT, UNLESS EQUIPMENT IS NOTED TO BE FURNISHED WITH INTEGRAL DISCONNECTS. LABEL ALL DISCONNECT SWITCHES TO INDICATE POWER SOURCE AND EQUIPMENT SERVED.

M4. COORDINATE EXACT INSTALLATION LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL PLANS PRIOR TO ROUGH-IN.

M5. CONDUITS SHALL BE RIGID ALUMINUM AT EXTERIOR LOCATIONS.

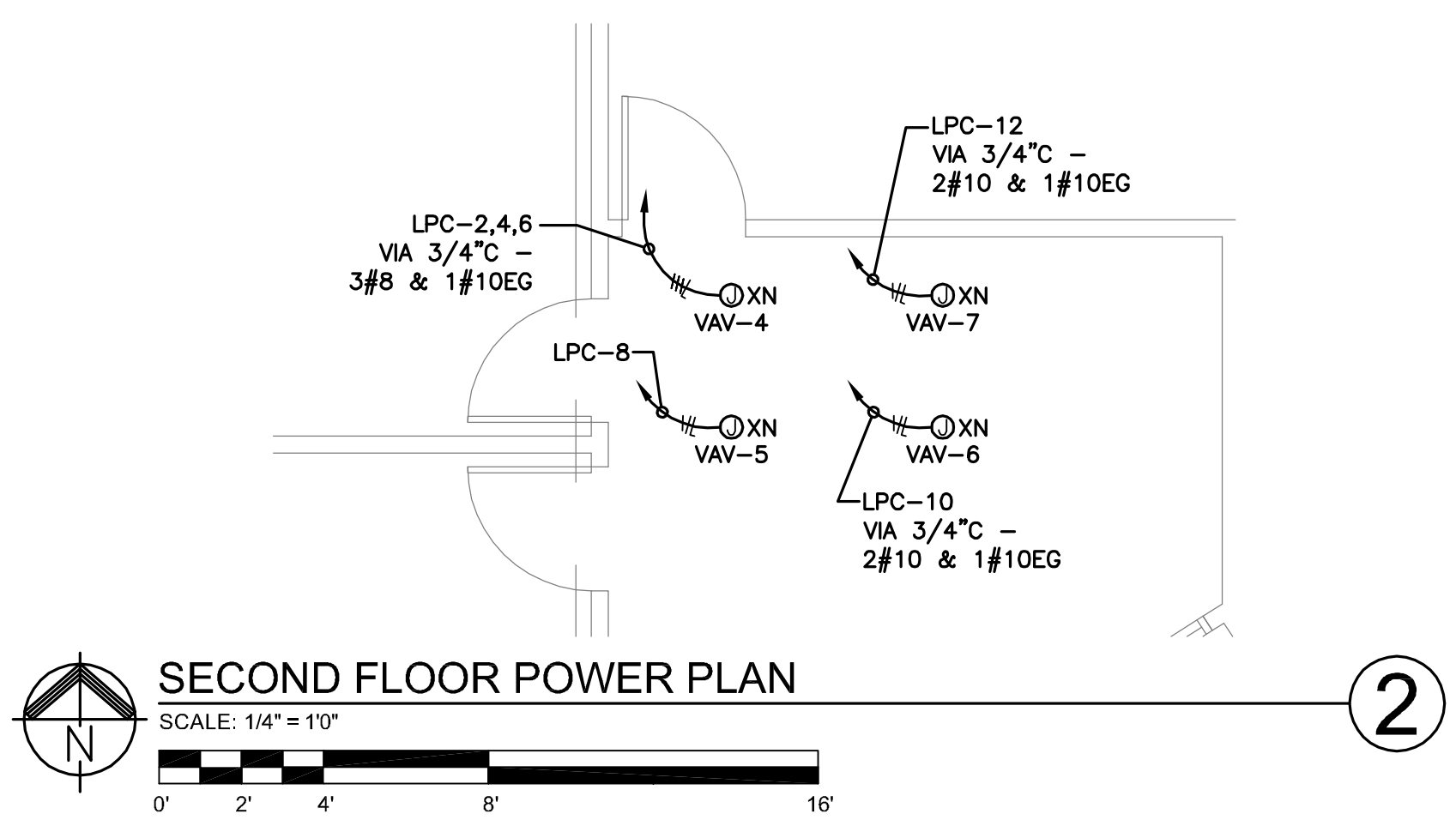
M6. SHARED NEUTRALS ARE NOT PERMITTED FOR BRANCH CIRCUITS.

CODING NOTES:

1 EXISTING TYPE 'C3' FIXTURES HAVE (3)32W-T8-SP35 LAMPS INSTALLED. CONTRACTOR SHALL CLEAN AND REPLACE ALL LAMPS IN TYPE 'C3' FIXTURES WITH (3)28W-T8-SP35 LAMPS IN DESIGNATED ROOM. LAMPS SHALL HAVE A MINIMUM 2562 MEAN LUMENS AND A 85 CRI RATING.

2 EXISTING TYPE 'A' FIXTURE IN ROOM. REPLACE FIXTURE BALLAST DESIGNATED BY A 'D' WITH INTEGRAL DAYLIGHT HARVESTING BALLAST (GREEN BALLAST, INC. - DAYLIGHT HARVESTING 3 LAMP T8 BALLAST).

3 PROVIDE NEW OCCUPANCY SENSOR IN ROOM AS DESIGNATED. REWIRE ALL ROOM LIGHTING FIXTURES TO BE CONTROLLED BY OCCUPANCY SENSOR AND EXISTING LOCAL SWITCH.



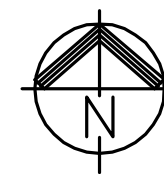
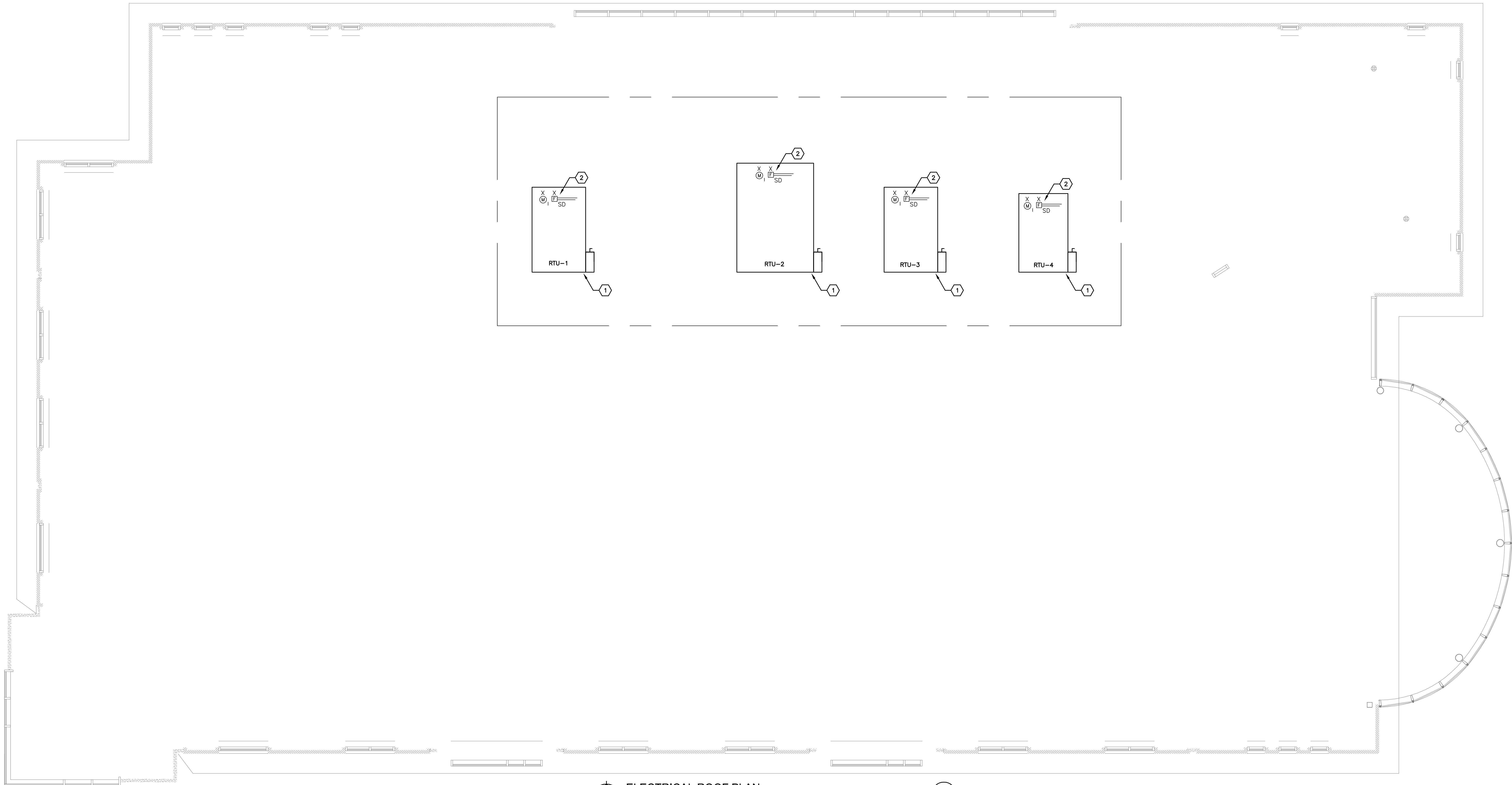
SECOND FLOOR POWER PLAN
SCALE: 1/4" = 1' 0"

FOR CONSTRUCTION

CONSULTANTS:			ARCHITECT/ENGINEERS:		Drawing Title SECOND FLOOR ELECTRICAL PLANS		Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2		Project Number 541-13-106		Office of Construction and Facilities Management 	
			 FREDRICK, FREDRICK & HELLER ENGINEERS, INC. 872 EAST ROYALTON ROAD BROADVIEW HTS., OHIO 44147 TEL: (440) 546-9885 FAX: (440) 546-9889		Approved: Project Director		Location 10701 E. BLVD., CLEVELAND, OHIO 44107		Building Number 1			
Date 03-24-13						Date 03/29/13		Checked By JDM		Drawn By JDM		Drawing Number 1-E4
Revisions:												

VA FORM 08-6231

one eighth inch = one foot
0 4 8 16
one quarter inch = one foot
0 4 8
three eighths inch = one foot
0 4
one half inch = one foot
0 4
three quarters inch = one foot
0 2
one inch = one foot
0 6"
one and one half inches = one foot
0 6"
two inches = one foot
0 6"
three inches = one foot
0 6"



ELECTRICAL ROOF PLAN

SCALE: 1/4" = 1'-0"
0' 2' 4' 8' 16'

1

MECHANICAL EQUIPMENT GENERAL NOTES:

- M1. MECHANICAL EQUIPMENT SHALL BE CONNECTED COMPLETE PER MANUFACTURER'S WIRING DIAGRAMS AND DETAILS UNLESS OTHERWISE NOTED ON DRAWINGS.
- M2. CONTRACTOR SHALL CONCEAL CONDUIT AND WIRING IN WALLS AND ABOVE CEILING AND PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTION TO MECHANICAL EQUIPMENT. PROVIDE RIGID ALUMINUM CONDUITS AT EXTERIOR LOCATIONS. SEAL ALL ROOF PENETRATION WATER-TIGHT AND ALL WALL PENETRATIONS TO MAINTAIN FIRE RATING.
- M3. CONTRACTOR SHALL PROVIDE ALL LOCAL DISCONNECTING MEANS FOR ALL MECHANICAL EQUIPMENT, UNLESS EQUIPMENT IS NOTED TO BE FURNISHED WITH INTEGRAL DISCONNECTS. LABEL ALL DISCONNECT SWITCHES TO INDICATE POWER SOURCE AND EQUIPMENT SERVED.
- M4. COORDINATE EXACT INSTALLATION LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL PLANS PRIOR TO ROUGH-IN.
- M5. CONDUITS SHALL BE RIGID ALUMINUM AT EXTERIOR LOCATIONS.
- M6. SHARED NEUTRALS ARE NOT PERMITTED FOR BRANCH CIRCUITS.
- M7. EXTEND LIGHTING PROTECTION SYSTEM AND PROVIDE AIR TERMINALS ON ALL (4) CORNERS OF NEW ROOF TOP UNITS. VERIFY ADDITIONAL REQUIREMENTS WITH SPECIFICATIONS.

CODED NOTES:

- 1 EXISTING RTU-1 THRU RTU-4 TO BE REPLACED WITH NEW UNITS. ELECTRICAL CONTRACTOR SHALL DISCONNECT EXISTING RTU'S AND RECONNECT AT NEW LOCATION. EXTEND AND RELOCATE DISCONNECT, CONDUITS, WIRING, ETC AS NECESSARY. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF ROOF TOP UNITS.
- 2 EXISTING RTU DUCT DETECTOR, REMOTE TEST SWITCH AND MONITOR MODULE SHALL BE MAINTAINED AND CONNECTED TO NEW UNIT. VERIFY EXACT LOCATION OF NEW UNITS AND DUCT WORK WITH MECHANICAL DRAWINGS.

FOR CONSTRUCTION

FINAL CD SUBMISSION	03-24-13
Revisions:	Date

CONSULTANTS:



ARCHITECT/ENGINEERS:



FREDERICK, FREDRICK & HELLER
ENGINEERS, INC.
872 EAST ROYALTON ROAD
BROADVIEW HTS., OHIO 44147
TEL: (440) 546-9885
FAX: (440) 546-9886

Drawing Title
ELECTRICAL ROOF PLAN

Approved: Project Director

Project Title
**VAMC UPGRADE LEARNING
EXCHANGE - PHASE 2**

Location
10701 E. BLVD., CLEVELAND, OHIO 44107

Date
03/29/13

Checked By
JDM

Drawn By
JDM

Project Number
541-13-106

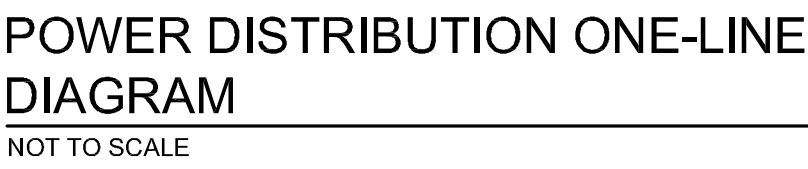
Building Number
1

Drawing Number

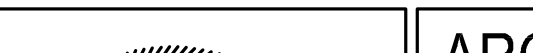

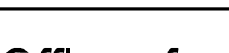
1-E5

Office of
Construction
and Facilities
Management



[illegible]

FOR CONSTRUCTION

		CONSULTANTS:				ARCHITECT/ENGINEERS:				Drawing Title POWER DISTRIBUTION ONE-LINE DIAGRAM		Project Title VAMC UPGRADE LEARNING EXCHANGE - PHASE 2		Project Number 541-13-106		Office of Construction and Facilities Management			
										Approved: Project Director		Location 10701 E. BLVD., CLEVELAND, OHIO 44107		Building Number 1					
FINAL CD SUBMISSION Revisions:		03-29-13 Date				03/29/13		FREDRICK, FREDRICK & HELLER ENGINEERS, INC. 12027 872 LAKESIDE AVENUE BROADVIEW HTS., OHIO 44147 TEL. (440) 546-1000 FAX (440) 546-1009		Date 03/29/13		Checked By MPL		Drawn By JDM		Drawing Number 1-E6		 Department of Veterans Affairs	